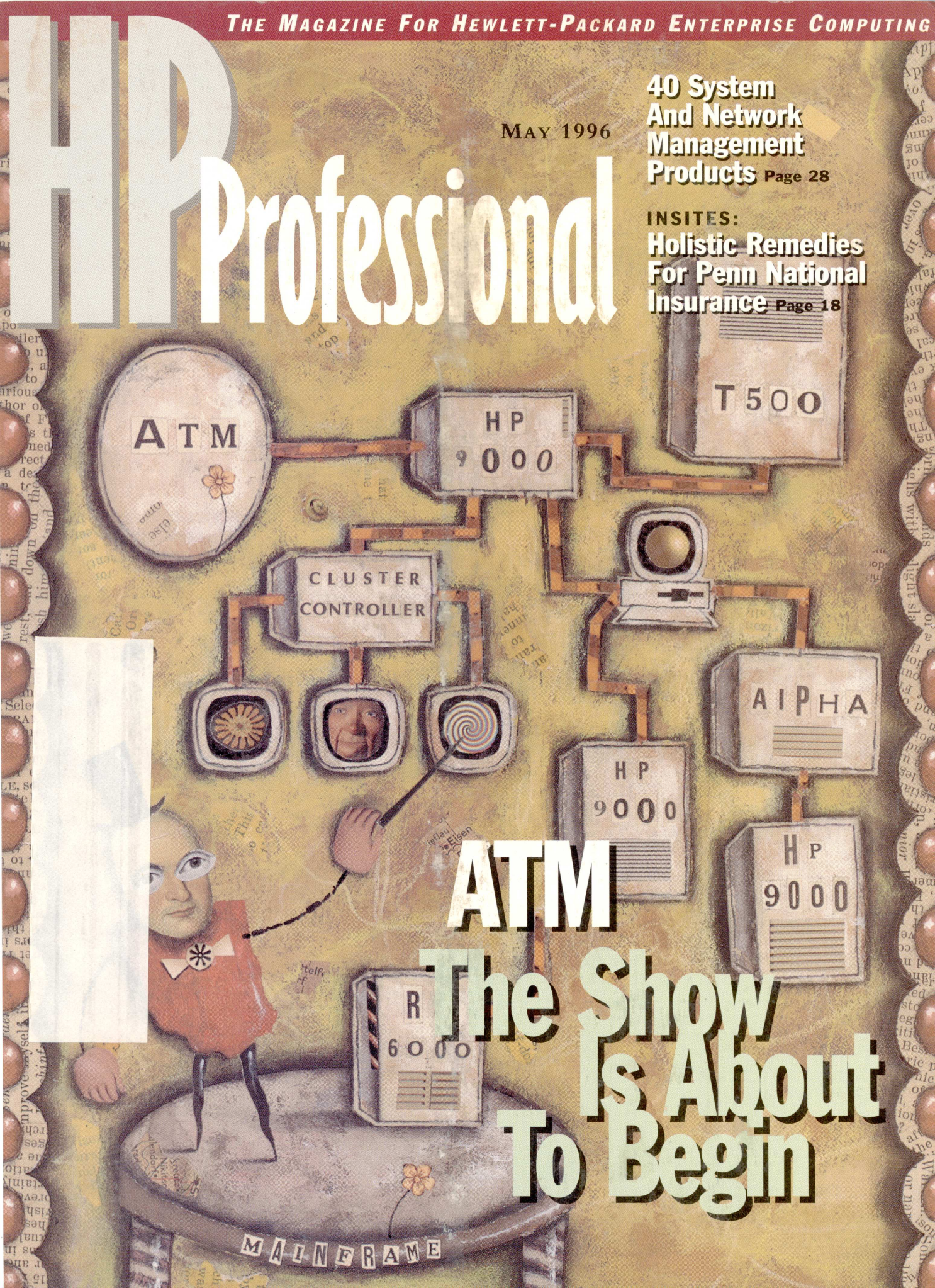


MAY 1996

**40 System  
And Network  
Management  
Products** Page 28

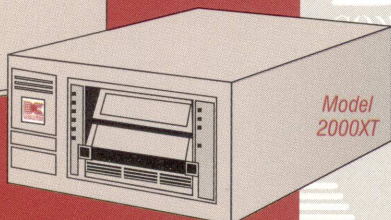
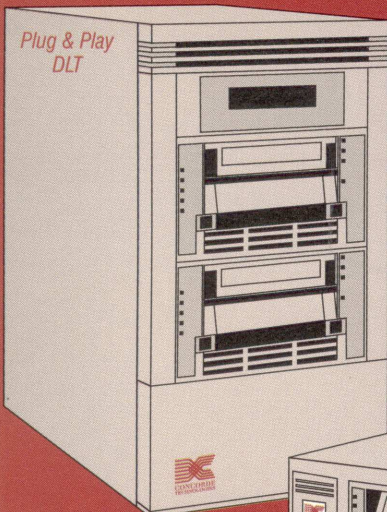
**INSITES:  
Holistic Remedies  
For Penn National  
Insurance** Page 18



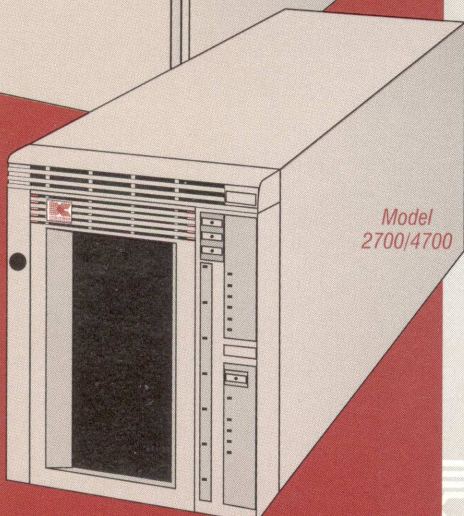
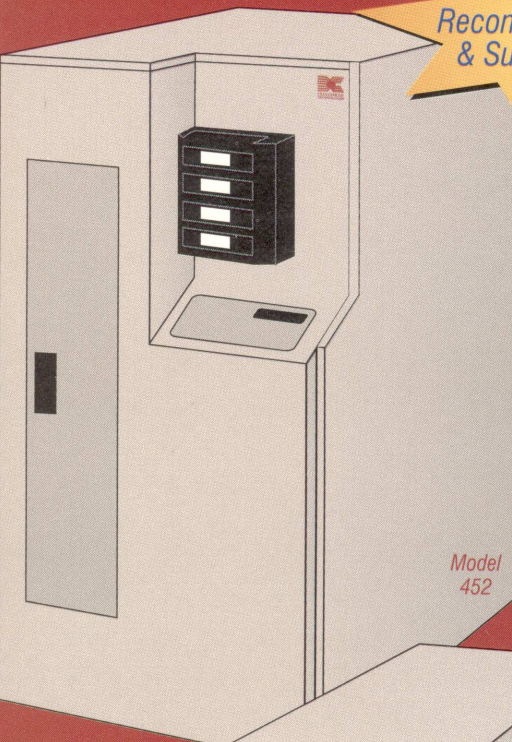
# ATM The Show Is About To Begin



# DLT Tape Solutions for Your HP 9000



**HP**  
Recommended  
& Supported



## Capacity, Performance & Reliability

These are all advantages inherent to Digital Linear Tape (DLT) technology. Your data-intensive applications require an "industrial strength" solution. DLT Tape offers exceptional durability and data integrity along with the ability to grow easily with your emerging needs.

**Concorde Technologies, Inc.** provides a full line of DLT tape solutions.

### DLT Drives

- 20-40 GB Capacity/Tape\*
- SCSI-2 Interface
- 2 Year Warranty
- 1040 GB Library Capacity\*
- 1.5-3.0 MB/Sec. Drive Transfer Rate\*
- 80,000 Drive MTBF
- 10,000 Hour Head Life

### DLT Libraries

- 1-9 Drives/Library
- 3-of-9 Bar Code Reader
- Up to 264 DLT Cartridges
- Capacities to 10 TB/Library\*
- Operator Load Port
- Hewlett-Packard Support
- Throughput to 1.3 TB/Hour\*
- Cost-Effective Upgrades

### DLT Software

- Backup/Restore Software
- "Hot" Database Backup
- Bar Code Support
- Client/Server Support
- HSM Software
- OmniBack II Support
- Lights Out Automated Operation
- Heterogeneous Network Support

Concorde specializes in high-performance network backup/restore solutions for HP 9000 Servers and Workstations. Backed by HP experience and a commitment to support, Concorde is an established leader among Hewlett-Packard Channel Partners.

To discuss your specific application or for a free backup/restore solutions catalog, contact a Concorde Sales Engineer.



**CONCORDE  
TECHNOLOGIES**

**800-359-0282**



**Concorde Technologies, Inc.**

9770 Carroll Center Road, Suite F, San Diego, CA 92126-6504 USA

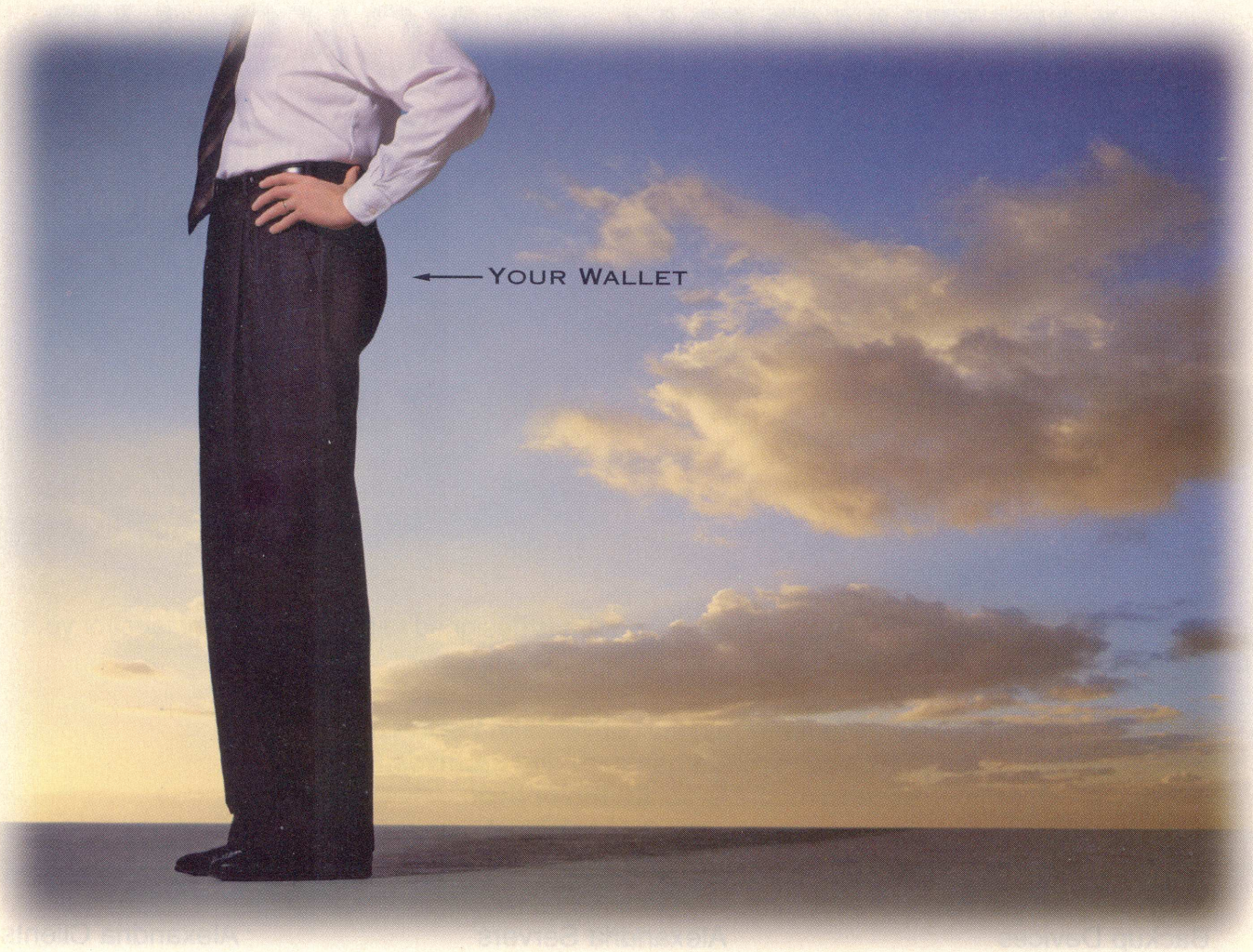
(619) 536-5500, (800) 359-0282, Fax: (619) 566-4396

E-mail: [info@concordetech.com](mailto:info@concordetech.com)

<http://www.concordetech.com>

\* Assumes 2:1 compression





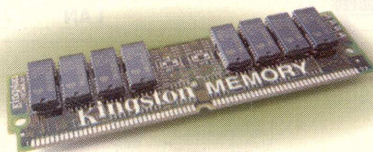
← YOUR WALLET

THERE'S ONLY ONE PLACE YOU'LL NOTICE A DIFFERENCE  
BETWEEN OUR MEMORY AND THE SYSTEM MANUFACTURER'S.



It's a little-known fact. Kingston® memory has exactly the same components, technology, and specifications as the leading workstation manufacturer's

memory. Yet it costs up to 50% less. Maybe that's why more and more computing professionals are choosing Kingston, the memory specialists. After all, Kingston is the world's leading manufacturer of memory. Our engineers customize the design of each module according to the specifications set by workstation



manufacturers. In fact, Kingston has licensing agreements with Sun Microsystems® and Silicon Graphics®,\* plus service agreements with DEC™ and IBM®. And just to prove how confident we are in our memory, we give it a lifetime warranty.

To get the memory that's just right for your workstation, call our toll-free number: (800)435-0669. You'll find that our memory is identical to your workstation manufacturer's in every way, except one: the price.

**Kingston**  
TECHNOLOGY CORPORATION

For more information call us at (800) 435-0669



Visit our Web site: <http://www.kingston.com/hp.htm>

\*Kingston has licensing agreements with Sun Microsystems to manufacture 100% compatible memory for SPARCserver 20, SPARCstation 20, SPARCserver 10, SPARCstation 10, UltraSPARC I, and UltraSPARC 2; and with Silicon Graphics to manufacture 100% compatible memory for ONYX workstation, Challenge server, and Power Challenge computer systems. Kingston Technology Corporation, 17600 Newhope Street, Fountain Valley, CA 92708 USA, (714) 435-2600, Fax (714) 435-2699.  
© 1996 Kingston Technology Corporation. All rights reserved. Kingston Technology is a registered trademark of Kingston Technology Corporation. All other products or services are the trademarks or registered trademarks of their respective holders.



# LIE BACK WHILE YOUR NETWORK BACKS UP.

Visit our Home Page at  
<http://www.iem.com>



Now, you can relax with IEM and Alexandria. Alexandria is designed to supervise every facet of your UNIX network backup. So, while you are taking it easy, Alexandria will:

- Work 24 hours a day, 7 days a week, and never take vacation.
- Organize and automate your system backups and archives.
- Manage all of your backup media — including optical.
- Back up your entire network — even if it consists of several UNIX platforms.
- Work with IEM's 4mm and 8mm carousels and autofeeder as well as HP's optical libraries.

## Backup Devices

*Drives, Autofeeder,  
and Jukeboxes*

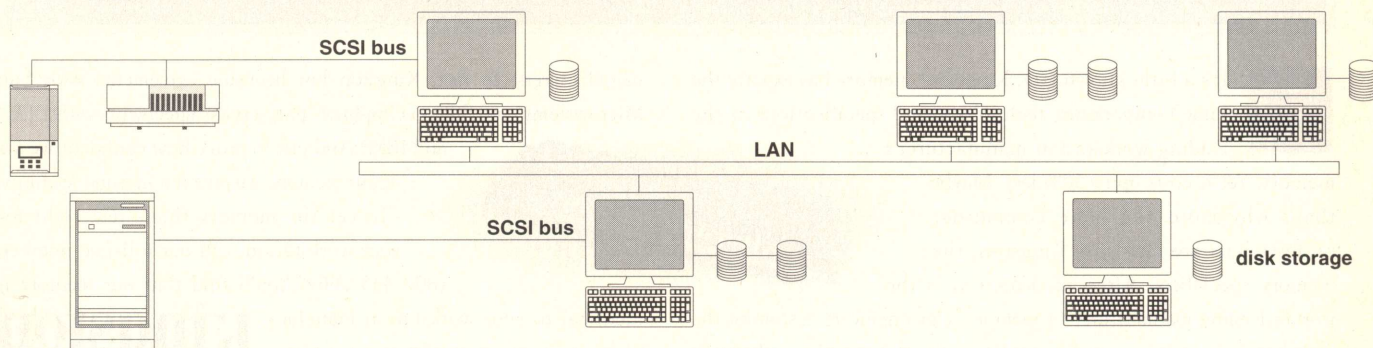
- 4mm tape
- 8mm tape
- 3480 tape
- Optical disk
- DLT

## Alexandria Servers

*HP 9000 700/800  
and non-HP  
UNIX-based machines*

## Alexandria Clients

*HP 9000 300/ 400/ 700/ 800  
and non-HP  
UNIX-based machines*



IEM specializes in HP-compatible solutions. For more information on IEM products, please contact us at one of the numbers below.



© 1995 Anis Inc., A3.395  
Alexandria is a trademark of Spectralogic

*In the U.S. and Canada:*  
IEM, Inc., P.O. Box 1889  
Fort Collins, CO 80522 USA  
Phone: (970) 221-3005  
(800) 321-4671  
Fax: (970) 221-1909  
E-Mail: [info@iem.com](mailto:info@iem.com)

*In the United Kingdom:*  
IEM, Inc., Colorado House  
Cromwell Park, Banbury Road  
Chipping Norton, Oxfordshire  
OX7 5SR  
Phone: [44] 01608 645000  
Fax: [44] 01608 645155

*All Others*  
IEM International Sales  
1629 Blue Spruce Drive  
Fort Collins, CO 80524 USA  
Phone: +[1] 970-221-3005  
Fax: +[1] 970-221-1909  
E-Mail: [info@iem.com](mailto:info@iem.com)

CIRCLE 122 ON READER CARD



# Contents

May 1996

Vol. 10, No. 5

## ATM . . . Its Time Has Come

By Henry H. Wong

23

Just as the anticipated networking technology of the 1980s becomes an economic reality, the applications of the 1990s — multimedia, document imaging, collaborative computing, software distribution and video conferencing — generate an almost insatiable demand for network bandwidth. Asynchronous Transfer Mode (ATM) is becoming networking's point of convergence.

## Everybody Get Together, Got To Link One Another Right Now

28

By George A. Thompson

You say you don't have time to manage your network, let alone learn what products are available to you? Well chill out. We've put together a short list of 14 vendors and their products to get you started down the path toward system control and inner networking peace.

### COLUMNS

#### Industry Watch

By George A. Thompson

HP now ranks as the industry's fastest-growing UNIX-based technical-systems vendor; Renaming HP's Finance and Remarketing Division; HP's AssetView — the closest thing to a digital bean counter; And HP issues an updated benchmark for its 64-bit PA-8000 CPU. . .9

#### UNIX At Large: Tips From The Edge Of UNIX Insanity

By Fred Mallett

New looks at old patches. Techniques on backup procedures. Handy tips on HP-UX. And finally, who says PCs can't run UNIX software? . . .30

#### Inner Networking: Tornado Redux

By Jill Huntington-Lee

HP OpenView Network Node Manager, otherwise known as Tornado Release II, is finally out the door — much to HP's relief. But does it bring the winds of change or just a lot of hot air? . . .34

#### To And From The Desktop: Windows 95: Little Software Of Horrors

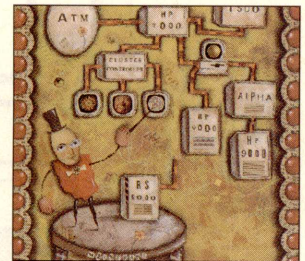
By Jim Carr

Like the *Friday the 13th* movie series, upgrading to Windows 95 isn't for the faint of heart. But once you get past the blood and guts, is there really anything to be scared of? . . .36

#### & Another Thing. . . : Don't Get Soft On Hardware

By Dan Strout

So you've bet the business on HP hardware. Relax. It's a wise choice, but don't be fooled. Buying reliable hardware alone doesn't make your business invulnerable to a costly disruption. . . .48



Editorial	7
Letters To The Editor	20
New Products	38
Reader Information/ Advertiser Index	41
Product Showcase	44

### PRODUCT WATCH:

Innovative Software's Power Center	12
Forest Computers' HFC for NetWare	14

### STRATEGIC DIRECTIONS:

CNT	16
-----	----

### INSITES:

HP, Holistic Systems And Sybase Help Penn National Insurance Hone A High- Performance Information Warehouse System.	18
--	----

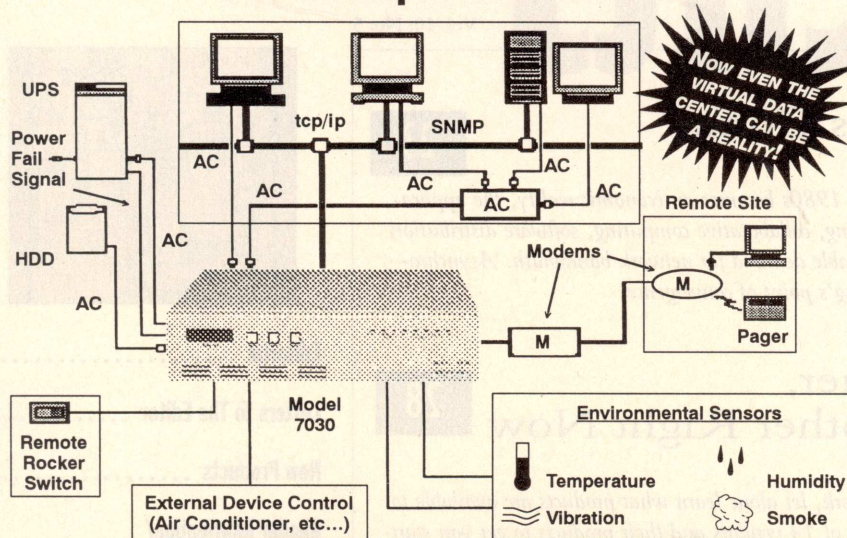
HP Professional

Cover illustration by Colin A. Johnson



# Do You Have One UPS, A Bunch Of UNIX Servers, And A Burning Desire For Advanced Power Management?

## Looking To Buy Multiple UPS's For Multiple Servers?



## Save Money With Texas ISA's Ultimate UNIX Power Management Solution!

### FEATURES

- ✦ Automatically applies and removes AC power to networked computers and peripherals using one UPS
- ✦ Gracefully shuts down and starts up computers using:
  - ✦ Attached Rocker Switch
  - ✦ Programmable Timers
  - ✦ Environmental Sensors
  - ✦ UPS Power Fail Signal
  - ✦ Local or Remote Console
- ✦ Connects through serial or LAN port
- ✦ Notifies remote system or pager of abnormal conditions
- ✦ Digital inputs and outputs to monitor external devices
- ✦ Supports TCP/IP and SNMP

### BENEFITS

- ★ Protects the OS and data from being corrupted
- ★ Increases computer and peripheral life expectancy
- ★ Helps UNIX managers conform to the EPA Energy Star program
- ★ Secures the startup/shutdown procedure against unauthorized access
- ★ Eases local and remote systems management
- ★ Eliminates unnecessary travel time to reboot remote systems
- ★ Facilitates large scale distributed computing power-downs and power-ups
- ★ Makes the virtual data center a reality

Call Texas ISA today for your **FREE 30 day trial**. It's simple to install.

**800-361-2258 • 713-493-9925**

**info@texasisa.com • Website: <http://www.texasisa.com>**

CIRCLE 127 ON READER CARD

### HP PROFESSIONAL EDITORIAL ADVISORY BOARD

**Patrick A. Adamiak**  
Marketing Manager for HP's Channel Partners (North America)

**Nigel Ball**  
Marketing Director For HP's General Systems Division

**Robert Bruen**  
Computing and Networking Manager at the MIT Lab for Nuclear Science

**Frank Humphries**  
Director of Marketing at HP Asia Pacific Ltd.

**Thomas Kucharvy**  
President of Summit Strategies

**John R. Logan**  
Vice President of Aberdeen Group Inc.

**Michael J. Meinz**  
Principal Technical Consultant at General Mills Inc.

**Glenn Osaka**  
General Manager of HP's Professional Services Organization

**Bard F. White**  
CIO and Worldwide Director of MIS for Spalding Sports Worldwide

# HP Professional

**EDITOR-IN-CHIEF** Charlie Simpson  
simpsoncm@box101.cardinal.com  
**SENIOR EDITOR** George A. Thompson  
thompsonga@box101.cardinal.com  
**ASSOCIATE EDITOR** Deborah Schwartz  
schwartzdr@box101.cardinal.com

**INTERNATIONAL EDITIONS EDITOR** Karine Simpson

### COLUMNISTS

**NETWORK MANAGEMENT** Jill Huntington-Lee  
**PC NETWORKING** Jim Carr  
**PC** Miles B. Kehoe  
**UNIX** Fred Mallett

**CONTRIBUTING AUTHORS** Donna Gasiewski, Dan Strout, Cindy Todoroff, Henry H. Wong

### DESIGN & PRODUCTION

**EXECUTIVE DESIGN DIRECTOR** Leslie A. Caruso  
**ART DIRECTOR** Al Feuerstein  
**ASSOCIATE ART DIRECTOR** Jennifer Barlow

**PRODUCTION MANAGER** Carla Loughlin

### CIRCULATION

**CIRCULATION DIRECTOR** Carrie Eisenhandler  
**DIRECTOR OF FULFILLMENT** Margie Pitronie

### MARKETING

**PROMOTIONS DIRECTOR** Timothy M. Kraft  
**MARKETING MANAGER** Veronica L. Sutsko  
**SENIOR GRAPHIC DESIGNER** Christine Piatkowski  
**GRAPHIC DESIGNERS** Mark Broomell, Patty Wall

**PUBLISHER** Leslie Ringe

### CARDINAL BUSINESS MEDIA, INC.

**PRESIDENT AND CHIEF EXECUTIVE OFFICER**

Robert N. Boucher

**CHIEF FINANCIAL OFFICER**

Thomas C. Breslin

**VICE PRESIDENT, PUBLISHING**

R. Patricia Herron

**VICE PRESIDENT, HUMAN RESOURCES**

Dorothy J. Flynn

**VICE PRESIDENT, SPORTS & MUSIC DIVISION**

Thomas J. Morgan

**VICE PRESIDENT, RETAIL DIVISION**

Marianne Howatson

For more information on how to contact your sales representative, see page 42. For address changes and other subscription information, please call (708) 291-5212 or FAX (708) 564-9002. In the U.S., missed issues must be claimed within 45 days of publication date; outside the U.S., missed issues must be claimed within 90 days. Editorial, advertising sales and executive offices at 1300 Virginia Dr., Ste. 400, Fort Washington, PA 19034 ■ (215) 643-8000 Corporate FAX (215) 643-8099.

HP PROFESSIONAL ISSN 0896-145X is published monthly by Cardinal Business Media Inc., 1300 Virginia Dr. Ste. 400, Fort Washington, PA 19034. Subscriptions are complimentary for qualified U.S. and Canadian sites. For reprints, contact Reprint Management Services, 505 E. Airport Rd., Lancaster, PA 17601; (717) 560-2001, FAX (717) 560-2063. Second Class postage paid at Fort Washington, PA 19034, and additional mailing offices. POSTMASTER: Send all correspondence and address changes to HP PROFESSIONAL, P.O. Box 3052, Northbrook, IL 60062. COPYRIGHT © 1996 by Cardinal Business Media Inc. CANADIAN POSTMASTER: Send all correspondence and address changes to Cardinal Business Media, C/O N.L., P.O. Box 44, RPO Rockwood Mall, Mississauga, ON L4Z 9Z9. All rights reserved. No part of this publication may be reproduced in any form without written permission from the publisher. All submitted manuscripts, photographs and/or artwork are sent to Cardinal Business Media, Inc. at the sole risk of the sender. Neither Cardinal Business Media, Inc. nor HP PROFESSIONAL magazine is responsible for any loss or damage. HP PROFESSIONAL is an independent journal not affiliated with Hewlett-Packard Company. HP and Hewlett-Packard are registered trademarks and HP PROFESSIONAL is a trademark of Hewlett-Packard Company.

Canada Post International Publication Mail Canadian Distribution Sales Agreement #IPM0264431

Printed in U.S.A.

ABP BPA



*The* benefits of rightsizing

are nothing short of miraculous.

But if you forgot about

production printing, you're going to need

*a miracle*

just to print statements or invoices.



*Thankfully, miracles do happen. Xerox, the leader in production laser printing, and Hewlett-Packard, the leader in UNIX business servers, have joined forces to give HP 9000 users direct access to Xerox' family of 50+ ppm laser printers for enterprise-wide distributed production print solutions. So relax. Because now you can print your mission-critical documents where you need them, when you need them. With quality, speeds and reliability to meet your most demanding print applications. All backed by both companies' outstanding service and support. To learn more, call us at 1-800-ASK XEROX (ext.250). It's everything you've been wishing for.*

THE DOCUMENT COMPANY  
**XEROX**

 **HEWLETT®  
PACKARD**

CIRCLE 183 ON READER CARD



## HP Series

	MB	1	2	4	8	12	16	32	64	128	256
HP-200/310/320											
HP-319											
HP-330/350/370											
HP-332											
HP-340											
HP-345/375/380											
HP-360											
HP-362											
HP-382											
HP-400/425/433											
HP-425E											
HP-700RX											
HP-705/710											
HP-715/725											
HP-720/730/735											
HP-742/745/747											
HP-750/755											
HP-8X7/9X7											
HP-FXX/GXX/HXX/IXX											

# PICK A CARD.

**Any card.** The memory you need is in stock, tested and ready to go. Order today. Upgrade your system tomorrow.

You'll get the quality and service you expect from the leader in HP workstation enhancements. We specialize in HP, it's the platform we know best.

Newport Digital TURBO cards and memory products are guaranteed to meet or beat HP quality standards. Every card we ship has been rigorously tested in a fully functional workstation, just like yours.

**Risk free.** Our total quality program gives us the confidence to offer an unconditional lifetime warranty. If one of our products fails, we'll ship a replacement by overnight express. We'll do anything we can to keep your workstation working.

**Call Today.** Speak with an expert on Hewlett-Packard computers. We'll make sure you get the cards you need.

Evaluate any of our memory products for 30 days. If you're not completely satisfied, return it without obligation.

**NEWPORT DIGITAL**  
**1-800-383-3642**

CIRCLE 246 ON READER CARD



# An American Band On The Run With A Bullet

It's got a great beat. You can definitely dance to it. And all the kids are diggin' it. Skipping up two notches this week on America's Top 20 companies — it's none other than Hewlett-Packard's "The HP Way." With the release of the 1995 annual report, HP moved up on the Fortune 1000 list of companies to number 20 overall and number 2 in the computer industry.

In their past fiscal year (ending in October 1995), after adding \$7 billion in orders and \$6.5 billion in revenues, HP increased its net earnings by more than 50 percent. In his letter to the shareholders, Lew Platt attributes this success to the teamwork of HP people. Platt cites two examples of how HP worked together: the re-org of the Computer Organization under Rick Belluzzo last August, and the Telecom '95 Show in Geneva, Switzerland. In fact, HP's telecom sales reached \$2.5 billion in 1995.

Despite the success, Platt keeps his feet firmly on the ground, offering a realistic prediction. "It will be a major challenge to replicate this year's growth rates in fiscal 1996." But he said that last year too. Just what were the numbers for HP in 1995? Well, total orders were \$32.5 billion, up 28 percent from 1994, with U.S. sales totaling \$14.6 billion and international orders at \$17.9 billion. Net revenues were up 26 percent to \$31.5 billion with earnings from operations at \$3.6 billion — up 40 percent. Net earnings rose to \$2.4 billion, up 52 percent. At fiscal year end, there were 102,300 employees compared to 98,400 at the end of fiscal 1994. However, HP just reported that as of the end of March 1996 there were 105,200 employees.

Broken down by industries, HP ranked number two in the top 24 computer companies in the Fortune list. HP's \$32 billion in revenues trailed IBM's \$72 billion (number six overall in the Fortune 1000), but exceeds Compaq Computer's \$14.8 billion (72 in the Fortune 1000) with more than double the revenues. In case you're wondering, Digital took the number four computer spot (number 77 overall) with almost \$14 billion, Apple Computer was fifth (114 overall) with \$11 billion and Sun ranked sixth (222 overall) with nearly \$6 billion in revenues.

We know what this means to the average HP investor — they are getting a great return on their money. But what does this good news mean to the average HP user? Well, HP has poured over \$2.3 billion into research and development. This effort has yielded strategies such as "build to order" and products based on UNIX and Windows NT, as well as new technologies in its medical and communications divisions. Build to order is nothing new for many businesses; however, build to order is an approach just recently introduced to HP's PC division during 1995. In fact, 100 percent of HP Vectra PCs are now built to order. HP no longer stockpiles a full warehouse of PC configurations. Take that, Michael Dell.

And while NT has always been on the PC server side of the brain, HP's UNIX servers group announced that it will be shipping the HP Advanced Server/9000 system which includes the Windows NT-based AT&T Advanced Server 3.51 operating system. Yikes. What does that mouthful mean? One thing it doesn't mean is to rush out and sell your UNIX systems — not just yet. This is just one more hybrid offering HP is providing in a roundabout way to give the customer what they want, no matter what that is; much like any good sales team would. However, look for another big NT announcement next month and find out what it means for you in the pages of *HP Professional*.

Maybe some day we'll get tired of saying it; but for the foreseeable future, HP will remain at the top of the charts. I wonder if they're hiring?



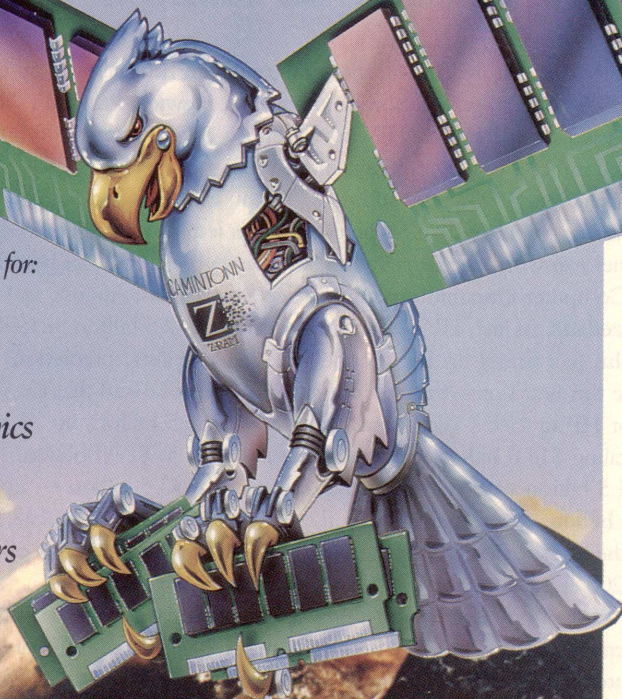
**Charlie Simpson**

[simpsoncm@box101.cardinal.com](mailto:simpsoncm@box101.cardinal.com)



# Camintonn Z-RAM® Delivering Memory To The World.

Memory products for:  
*digital*  
HP Apollo  
IBM RISC  
Silicon Graphics  
SUN  
PCs and  
Laser Printers



Camintonn Z-RAM customers come back again and again because of our 15-year record of proven leadership. Not just in high quality products, but also in prompt customer service, knowledgeable technical support, and a 24-hour repair-or-replace guarantee. Backed by a lifetime warranty.

And since Camintonn Z-RAM has the broadest line of memory products available, designed and rigorously tested in the United States, the quality product you need is ready for immediate delivery worldwide. What's more, we're almost always the first to offer 100% compatible memory for the newest systems – often before they're available from the original manufacturers.

Guaranteed performance and a 15-year track record of growth and financial stability. Call us at 1-800-368-4726 for an immediate quote for your system.

## **FREE** Camintonn Z-RAM Atlas Your Guide To The World Of Memory

Fax this form back to us and we'll send you a Windows version of The Automated Upgrade Guide – (3.5" disk) a \$49.95 value!

Name \_\_\_\_\_  
Title \_\_\_\_\_  
Company \_\_\_\_\_  
Street \_\_\_\_\_  
City/State/Zip \_\_\_\_\_  
Phone \_\_\_\_\_ Fax \_\_\_\_\_

Which computer platforms are currently in use at your company? (check all that apply)

DEC \_\_\_\_\_ SGI \_\_\_\_\_  
HP \_\_\_\_\_ SUN \_\_\_\_\_  
IBM \_\_\_\_\_ PC LANs \_\_\_\_\_

**CAMINTONN®**  
CORPORATION

The last word in memory®

Tel: 800/368-4726 or 714/454-1500

Fax: 714/830-4726

U.K. Tel: 44/ 1 865-784747 • Fax: 44/ 1 865-784750

Camintonn/Z-RAM world headquarters located at 22 Morgan, Irvine, CA 92718-2202. European headquarters located at Oxford Science Park, OX4 4GA, U.K. ©1996 Camintonn Corporation. Product and company names are trademarks or registered trademarks of their respective companies.

**CIRCLE 294 ON READER CARD**



## INDUSTRY WATCH

George A. Thompson

## HP'S HIGH FLYING FINANCE

In April, HP's Finance and Re-marketing Division was renamed HP Technology Finance. Because the new name will replace the different monikers HP had used around world, the change will provide HP with a consistent worldwide image. Once the leasing arm of HP, the Technology Finance division now helps corporate customers with "life cycle management." In other words, acquiring, managing and disposing of their HP and non-HP technological assets.

Although the new identity isn't ground shaking news, the newly renamed division with 30 percent to 40 percent growth rates is one of HP's fastest growing divisions. With services in more than 100 countries and \$1.9 billion products financed in 1995, HP Technology Finance is one of the five largest technology leasing organizations in the world, according to the Equipment Leasing Association (ELA; Arlington, Va.). HP

Technology Finance is one-fourth of HP's \$4 billion Worldwide Customer Service Organization (WCSO). The other three units comprising the WCSO include the Operation Services Division (OSD), Software and Support Technology (SST) and Multivendor Support Division (MSD). ●

## EMPOWERED ENGINEERING IS A BIG HIT FOR HP

HP now ranks as the industry's fastest-growing UNIX-based *technical-systems* vendor in calendar year 1995, according to Dataquest (Mountain View, Calif.). HP recorded the highest overall revenue growth rate of all leading vendors and also demonstrated the fastest revenue growth across four hotly contested technical markets: mechanical computer-aided design/manufacturing/engineering (MCAD/CAM/CAE); geographic information systems/mapping (GIS); electronic design automation and architecture (EDA), and engineering and construction (EAC).

At 28.9 percent, HP's revenue growth rate (combined for all four markets) was nearly twice that of SGI (16.5 percent) more than twice that of IBM (13.4 percent), and nearly three times that of Sun (10.9 percent). "HP's 1995 revenue growth rate demonstrates the widespread acceptance of HP's graphics workstations and servers in all technical markets," according to Sharon Tan, a Dataquest senior industry analyst. However, Tan cautions that the

data is still preliminary and is subject to change before it's officially published later this year. But the early results do show HP to be the clear winner.

It's the culmination of a two year plus focus on "Empowered Engineering," says Janet Muto, an HP technical marketing manager. "We saw the benefit in the early '90s of helping customers to solve problems, rather than just delivering new technologies. And not just to the engineers, but to all kinds of users like IT managers." For example, she says that SGI goes after the sizzle in animation, referring to SGI's dominant position in the 3D animation market. According to Muto, HP's compound annual growth rate in the 3D market has been 70 percent plus since 1991. ●

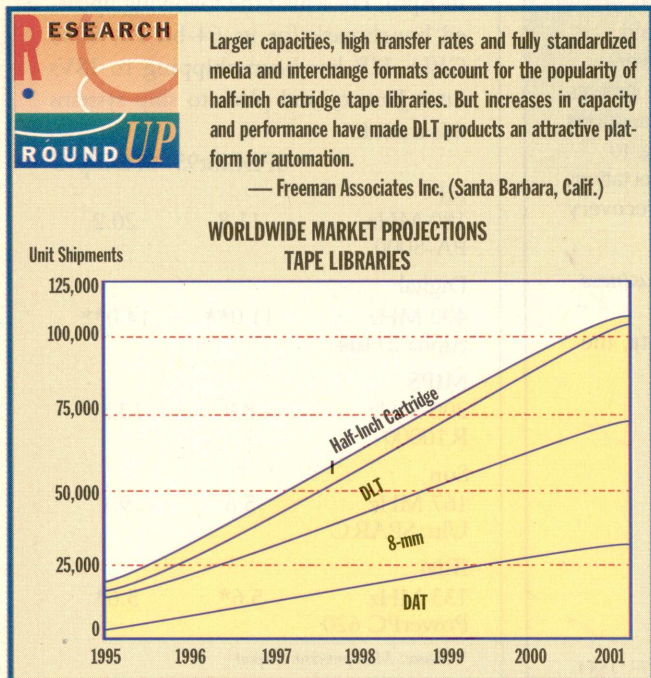
## IN MEMORIAM

DAVID PACKARD

Sept. 7, 1912 — March 26, 1996

On March 26, 1996, ten days after being taken to Stanford University Hospital, David Packard, co-founder and chairman emeritus of HP, died from pneumonia and other complications. Mr. Packard, of course, was one-half of the Hewlett-Packard Company that he started in 1938 with his college friend William Hewlett in a garage (designated a California State Historical Landmark in 1989) with \$538 in capital. When HP was incorporated in 1947, revenues amounted to \$679,000 with 111 employees. HP is now a \$31 billion a year manufacturer of computing, communications and measurement products with 105,200 employees worldwide.

Although HP is respected for its well-engineered and reliable technological products, Mr. Hewlett and Mr. Packard also worked together to develop a number of innovative employment and management techniques which became known as the "HP Way," and





which are now widely envied and emulated. For example, catastrophic medical coverage, flexible work hours, open offices, decentralized decision-making, "management by walking around," stock options, picnics and "coffee talks" are among the legacies left to his employees by Mr. Packard.

"Mutual understanding and responsibility have been, for many years, key characteristics of the HP style of manage-

ment."— Dave Packard, from his book *The HP Way: How Bill Hewlett and I Built Our Company* (Harper Business, 1995). ●

## COVERING YOUR ASSETS

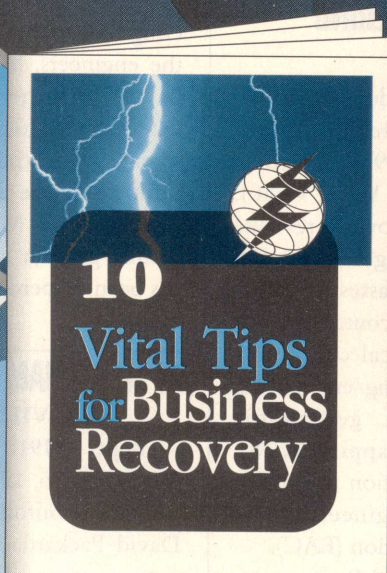
Now that you know what the HP Technology Finance division is all about, get ready for its first product. Called AssetView, it's the closest thing to a digital bean counter. HP's AssetView pro-

vides enterprisewide control over a full range of equipment — PCs, workstations, laptops, cellular phones, and test and measurement, as well as medical and analytical equipment. Over 400 data elements can be defined in the Sybase database. Oracle support is planned.

After using it for two years as part of its Asset Management Services, "so many customers wanted it for their own, we finally gave it to them," says Mandeep Khera, worldwide operations manager for asset management. He points out that Technology Finance is still offering services, which are often outsourced by large corporations, but "we now have a product that our customers can use on their own." The HP-UX-based AssetView runs on HP 9000 servers and can be used with PC or workstation clients. You can use it on Windows, Windows NT, UNIX, Macintosh, OS/2 and MS-DOS platforms. A single user license costs \$22,000, and includes a database, report writers and 4GL runtime module. It is now available in North America and Europe. Product availability in Australia and Singapore in the Asia Pacific market as well as Brazil and Mexico in the Latin America market is expected in the second half of this year. ●

I.S. MANAGERS:

# Read it, be prepared.



**10**  
**Vital Tips**  
*for Business*  
**Recovery**

**Yours Free.**

Whoever said "what you don't know can't hurt you," clearly didn't have any critical data to protect. If you do — if being off-line for even a few hours means being out of business — you'll want to get your hands on *10 Vital Tips for Business Recovery*. This concise, clear and informative booklet is an indispensable guide to anyone who must formulate a winning recovery strategy in the information age.


Written by some of the country's foremost experts in recovering

distributed systems and client-server applications in demanding environments, it's packed with answers to questions about everything from planning, to testing methodology, to the expectations you should have about your recovery service providers.

Best of all, *10 Vital Tips for Business Recovery* is **FREE**.

The more important your data, the more you'll want to read it.

**Call 1-800-654-1689 today, for your free copy.**



**DATA ASSURANCE CORPORATION**

We're ready when you aren't.

12503 East Euclid Drive, Suite 250, Englewood, Colorado 80111 303-792-5544

## PA-8000 BENCHMARK UPDATE

In April, HP issued the following updated benchmark for its 64-bit PA-8000 CPU. HP has been shipping to ISVs since January and plans to ship systems this month.

	SPECint95	SPECfp95
HP		
180 MHz PA-8000	11.8	20.2
Digital		
400 MHz Alpha 21164	11.0**	14.0**
MIPS		
200 MHz R10000	8.9	12.50
Sun		
167 MHz UltraSPARC	5.6	9.1
IBM		
133 MHz PowerPC 620	5.6*	5.6*

\* Source: Microprocessor Report

\*\* Vendor Estimates — systems not shipping



**Highest performance PC X Server.**  
Fully X11R6 compliant and the  
fastest on the market today.

**Common Desktop Environment (CDE).**  
Gives you the same look and feel across UNIX plat-  
forms as endorsed by SUN, HP, IBM, Novell, DEC,  
SGI, TriTeal, and other vendors.

**Xtrace Protocol Tracer.**  
Captures X network protocol for  
greatly simplified troubleshooting  
and application debugging.

**Support for up to VT 320 Emulation.**  
Including font resizing and  
scripting capabilities.

**Exceed Basic Scripting Language.**  
For customizing applications and  
automating repetitive tasks.

**Unique Launch Pad and Virtual Desktop.**  
User-programmable menuing facility with  
graphical interface simplifies window  
management and application launching.

**Enhanced Xpress Serial Line Access.**  
Takes advantage of modem  
compression capabilities.

**Unique full-featured X Development  
Kit.** Lets you port, design and run X  
clients right on the PC.

**Graphical Keyboard  
Configurator.** Enables simple  
remapping of keys and  
key sequences.

**RConfig and SConfig.**  
Even more powerful centralized  
network administration,  
configuration and  
installation facilities.

**NFS.** New Hummingbird  
client for seamless sharing  
of network resources.

**Xsession Drag-and-Drop Multiple  
Program Starter.** For concurrent  
startup of X, non-X, and  
Windows applications.

**E-Mail.** Supports MIME standards  
for file attachments.

**News Reader.**  
Provides simple access to  
USENET newsgroups.

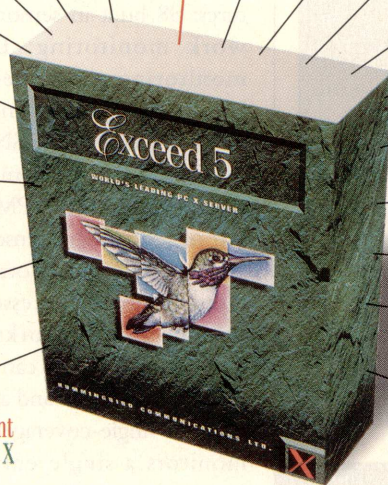
**PPP and SLIP support.** Provides  
IP over serial line connectivity.

**XIE support.**  
Offers high performance  
image handling.

**Also available in CD-ROM.**

**New Hummingbird VxD TCP/IP stack, plus  
Microsoft's TCP/IP stack.**  
Both support NFS and associated utilities.

**TN 3270.** Provides IBM  
terminal emulation.



# We Just Exceeded eXceed.

Introducing Exceed 5 — the leading PC X server with a new suite of internetworking tools.

**X** It wasn't easy. But Hummingbird just topped its own world standard PC X server, the one that outsells the closest competitor by more than three to one. We did it by giving Exceed 5 even higher performance. Plus an extensive new set of internetworking tools. And ended up with a package that goes even further to meet your connectivity needs.

Exceed 5 still features everything you need for robust PC-to-UNIX integration, including an upgraded TCP/IP stack, Exceed/Xpress dial-up connectivity, powerful network administration facilities, and Hummingbird's exclusive

X Development programming tools. And now you also get numerous additional TCP/IP applications. Including the highest performance NFS client available today. And Exceed is the only family of PC X servers available for Windows, Windows NT, Windows 95, OS/2, and DOS.

So for the internetworking solution that keeps exceeding your expectations, turn to Exceed. It's the world's leading PC X server and a whole lot more. For more information or the name of the reseller serving you, call (416) 496-2200.

**Now available for Windows,  
Windows NT & Windows 95.**

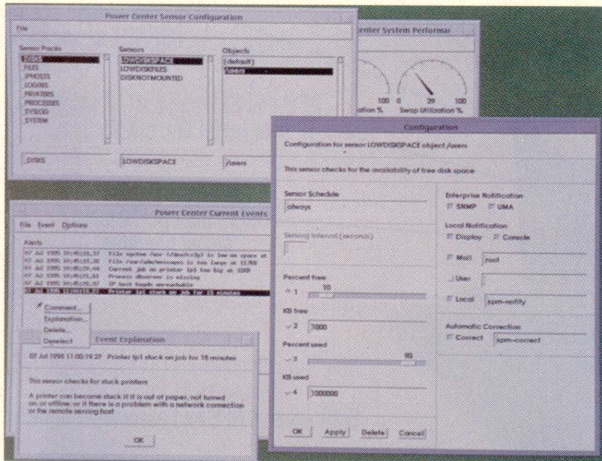


**HUMMINGBIRD®**  
COMMUNICATIONS LTD.  
CIRCLE 156 ON READER CARD





# An Innovative Way To Keep Your System Up And Running



## POWER CENTER 1.1

- Uses POSIX IEEE 1003.1, ISO/IEC 9945-1, ANSI X3.159, ISO/IEC 9899, X/Open XPG3, OSF/Motif 1.2 and ANSI X11R5
- Supports HP-UX, Sun Solaris, IBM AIX and OS/400, Digital UNIX and OpenVMS, and Microsoft Windows NT
- Price starts at \$495 for a desktop version

### Innovative Software

5261 S. Quebec St.  
Ste. 250  
Englewood, CO 80111  
tel: (303) 220-1500  
fax: (303) 220-9776  
info@innovative.com

CIRCLE 353 ON READER CARD

According to Jay Whitney, chief technology officer with Innovative Software (Englewood, Colo.), "A lot of people are shocked by the amount of money that is lost when your system goes down." System managers can find relief, however, with Innovative Software's Power Center software. Power Center is primarily used by telecom companies such as Airtouch Cellular, Alcatel, British Telecom and MCI.

Power Center 1.1 is a software suite comprised of three components — the System Problem Monitor, the Enterprise Notification System and the Mission Control

Station. Power Center features: 88 built-in sensors; network monitoring; E-mail monitoring; improved disk and process monitoring; and enhanced support for SNMP.

The System Problem Monitor (Power Center/SPM) consists of configurable sensors that monitor system performance, disks, printers, processes, file systems and networks. Additional sensor packs can monitor other hardware and applications. A single-coverage sensor monitors a single entity on your system, and a multiple-coverage sensor can monitor several objects of the same type. SPM includes a policy-driven monitor that detects, notifies and corrects problems with systems, software, hardware and applications.

The Enterprise Notification System (Power Center/ENS) supports a variety of alert notification mechanisms. Release 1.1 allows the ENS to notify staff of enterprise events from the SPM, or from any other SNMP-compliant device or application, including bridges, routers and hosts.

ENS continuously receives messages and performs notification based on a site's notification policy. All messages include: originating host, event name, affected system or network object (if any) and the message text. It

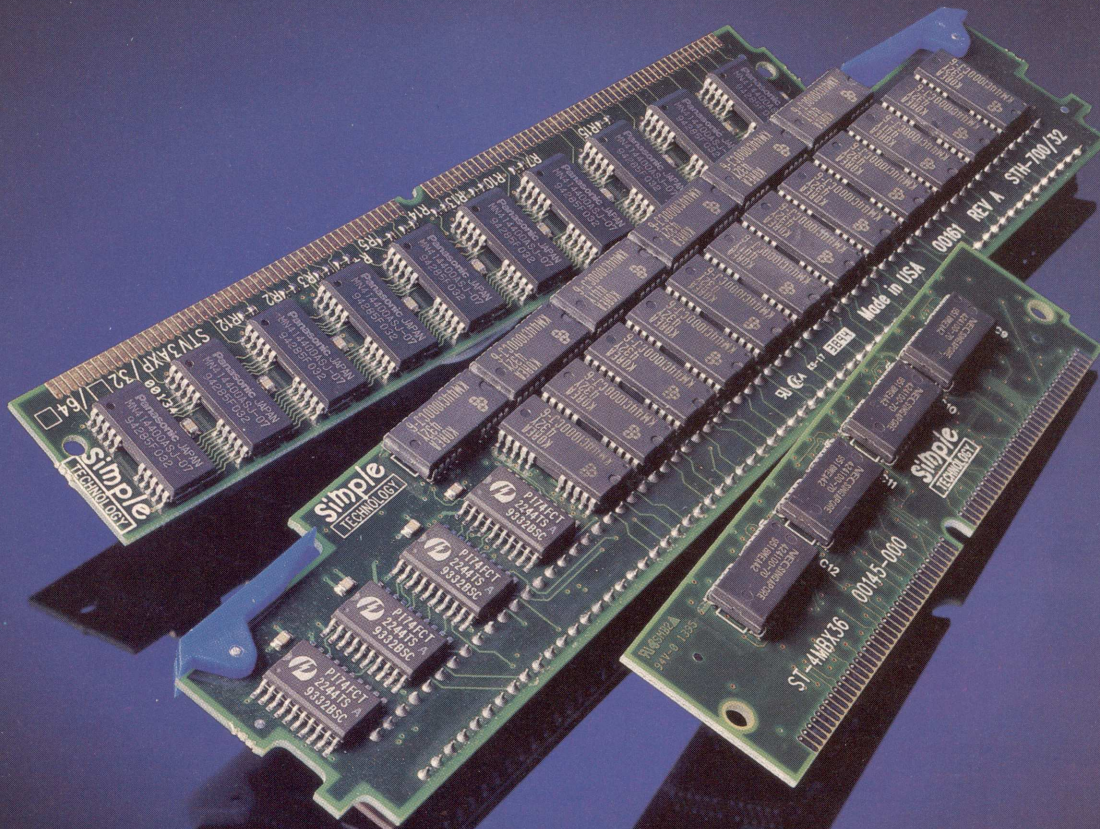
provides 24-hour lights-out event notification. If the designated person is unreachable, ENS can escalate to a different staff member who can handle the situation. ENS will invoke a predefined correction routine, as well as execute any operating system, database or application command.

The Mission Control Station (Power Center/MCS) is an OSF/Motif-based GUI which provides: point-and-click configuration of sensor alarm levels (SPM), notification options (ENS), printers, disk and file systems, and at-a-glance status of any system on the network with a continually updated graphical representation. Additional notification can take place via page, E-mail or interface to network managers such as HP OpenView, Sun NetManager, IBM NetView and Digital PolyCenter Manager on NetView.

Power Center supports HP-UX, Sun Solaris, IBM AIX and Digital UNIX. Versions for IBM AS/400 and Windows NT (on Intel and Alpha) are planned. Pricing is based on a per system basis and starts at \$495 for a desktop version.

—Deborah Schwartz,  
Associate Editor





# What goes into your workstation memory is as important as what goes into your workstation.

A workstation is no place for unproven components. Especially memory upgrades.

So, make sure yours is from Simple Technology. Because no one puts more into workstation memory than we do.

## Uncompromising Engineering

High-performance workstations require high-performance memory. And ours performs like a thoroughbred.

Every Simple Technology memory product is designed to meet or exceed your workstation's requirements.

Individual system-level testing in actual workstation guarantees 100% compatibility.

And strict quality control in our manufacturing facilities results in memory products that really last a lifetime.

Simple Technology also keeps your workstation on the leading edge with new advances like our revolutionary IC Tower™ chip stacking technology.

## Wide Product Selection

Whatever your workstation, we've got the memory. In standard configurations up to 256MBs.

Best of all, we're committed to maintaining in-stock inventory, so the products you want are often shipped the same day.

INDIVIDUALLY TESTED  
**100% COMPATIBLE**

**LIFETIME WARRANTY**

Digital  
Hewlett Packard  
IBM  
Silicon Graphics  
Sun

## Service, Support, Satisfaction

Feel good knowing your memory is made by the world's fastest growing memory manufacturer.

We offer free and unlimited technical support, a product evaluation program that can put any of our 1000+ products in your hands instantly, and a proven track record for consistently being first to market with new workstation memory.

## Call For Your Free Catalog

Call **800-4-SIMPLE** today to receive your free Simple Technology Workstation Memory Upgrade Catalog. Or call to find a dealer or reseller near you.

Put the reliability and power of Simple Technology memory in your workstation.

**UNLIMITED  
TOLL-FREE  
TECH SUPPORT**

**EVALUATION  
PROGRAM**

**800-4-SIMPLE**  
800-474-6753

**simple**  
**TECHNOLOGY**  
INCORPORATED

Memory and PCMCIA Solutions™

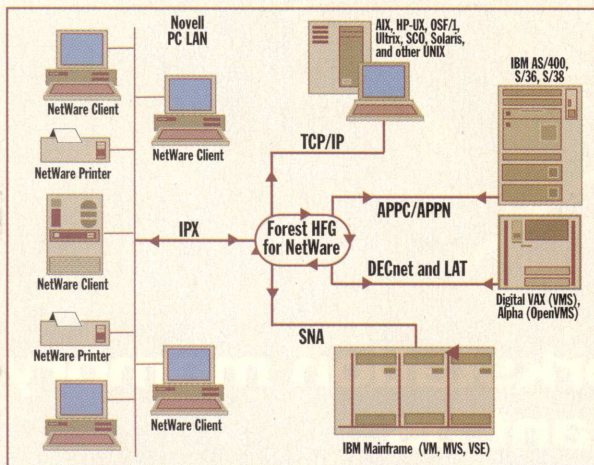
CIRCLE 261 ON READER CARD

For instant information contact our faxback at **800-429-5626 x500**

©1995 Simple Technology, Inc. All product names are trademarks of their respective companies. Simple Technology and the Simple Technology logo are trademarks of Simple Technology, Inc. Outside the US call (714) 476-1180.



# Over The River And Through A Forest Gateway



## HFG FOR NETWARE

- Connects to HP-UX, OpenVMS, ULTRIX, UNIX, PATHWORKS, TCP/IP and SNA.
- Price starts at \$17,500

### Forest Computer

P.O. Box 409  
Okemos, MI 48805  
tel: (517) 349-4700  
fax: (517) 349-2947

CIRCLE 351 ON READER CARD

In the world of computing, connectivity is everything. With corporate networks constantly in a state of flux, you need interconnectivity software and hardware that can support a variety of network architectures and platforms on your LANs and WANs. This need to interconnect different network architectures has created a modern line of gateway products. In the Novell market, these products are often referred to as "NetWare gateways" where all provide the same basic solution — the integration of different networks — but are limited to basic transport services and connectivity to one, and only one, type of network.

An alternative to the gateway products offered by Novell and Microsoft is Forest High-Function Gateway (HFG) for NetWare from Forest Computer. It's a self-contained Digital Alpha-based hardware/software product that does not require NetWare Loadable Modules on any NetWare servers or additional software in any of the HP, Digital, IBM or UNIX hosts that it supports.

The Forest gateway provides NetWare connectivity to HP-UX, OpenVMS, ULTRIX, UNIX, PATHWORKS, TCP/IP and SNA environments. With Forest HFG, you can interconnect with UNIX systems including HP-UX, Digital UNIX, AIX and Solaris; VAX and Alpha systems via DECnet LAN links; AIX, AS/400, S/36 and S/38 computers via APPN and APPC LAN or WAN links; IBM VM, MVS and VSE mainframes via SNA LAN or WAN links; and SCO, AT&T and BSD implementations via TCP/IP.

Forest HFG allows NetWare clients to initiate terminal sessions to HP-UX, Digital and IBM environments over IPX, which eliminates the need for multiple protocol stacks or emulators in client PCs. Moreover, NetWare clients can initiate file transfers

between any of these hosts using the standard DOS "copy" command or Windows File Manager. You get instant upload/download capabilities with your host systems without having to implement custom client-server software for each type of host. Furthermore, because Forest HFG employs standard DOS and Windows utilities, your users can initiate file transfers using native transfer facilities. Printer routing also is seamless with Forest HFG because host printers appear as NetWare print servers. You can print to a virtual NetWare printer port and have the output delivered to a Digital, IBM or UNIX printer. Similarly, you can direct output generated by Digital systems and the like to NetWare printers.

The Forest gateway does not require additional layered software on any of the interconnected hosts. The product is also sold on a flat-fee license. No user-based or session-based charges are applied and no third-party client-side software is required. It includes remote diagnostic capabilities for end-to-end support. Pricing for the Forest High-Function Gateway starts at \$17,500.

—Donna Gasiewski,  
Contributing Technical Editor





# Get a Life.

## Do You Ever Feel Your Life Doesn't Exist Outside of Work?

Does poor response time turn your weekends into workdays? Would a Saturday or Sunday without reloading your disk drives be a miracle? Too bad. Life doesn't have to be that way.

Getting control over your operating environment is no easy task. But with the help of **Disk Space Manager**, the job gets a whole lot easier. With this powerful tool at your fingertips, you'll soon be spending more time juggling your social calendar and less time juggling your disk space.

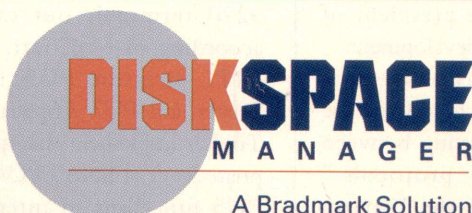
**Disk Space Manager** is a multi-purpose tool that allows you to manage

your disk environment easily and efficiently, gaining substantial new space without the expense of additional hardware. It runs online, without operator intervention, and uses HP's Transaction Manager (XM) to protect data integrity.

Using features like truncation, defragmentation, spreading and combining of files, populate set and manage set, you'll soon be managing your disk environment effortlessly—and you'll be assured of top I/O performance. It's that simple... No juggling. No worries. No weekend interruptions.

**Get Your Life Back.  
Get Disk Space Manager.**

**For Free Demo,  
Call 1/800/294-1190**



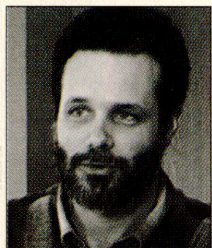
Disk Space Manager is a copyright of SolutionSoft Systems. All rights reserved, 1996.

CIRCLE 108 ON READER CARD



# Mainframes Get An Open Forum

CNT And Brixton Technologies Provide The Glass House Gang With SNA-To-TCP/IP Connectivity



"We looked at interconnectivity products and saw the value in converting between two network protocols."

Scott McCourt  
Vice President of  
Software Development  
CNT

**CNT**  
(formerly Brixton Office)

125 Cambridge Park Dr.  
Cambridge, MA 02140  
tel: (617) 498-2300  
fax: (617) 498-2480  
[www.cnt.com](http://www.cnt.com)

CIRCLE 352 ON READER CARD

Computer industry analysts, like so many psychics routinely predicting the end of the world as we know it, have been predicting the demise of the mainframe. Well, the software engineers at Computer Network Technology's (CNT) Cambridge, Mass. office (formerly Brixton Systems) certainly aren't preparing for Armageddon. And because they have been working on connecting IBM mainframe and midrange systems with UNIX, Microsoft Windows, Windows NT and Macintosh platforms since 1989, they aren't giving up on the mainframe any time soon.

CNT (Minneapolis, Minn.), better known for its Channelink products, a combination of hardware and software protocols for high-speed local and wide-area data transfer between mainframe CPUs, acquired the privately-held Brixton in 1994. "When Brixton was founded, IBM's SNA (Systems Network Architecture) was dominant. And TCP/IP was just then emerging," recalls Scott McCourt, vice president of CNT software development.

"So we looked at interconnectivity products and saw the value in converting between two network protocols." Consequently, the Brixton PU2.1 SNA Server, its flag-

ship product, is its fastest growing application. "It runs in the UNIX environment. Keeping it off the mainframe, frees up host cycles and doesn't tie up the mainframe."

The PU2.1 SNA server acts like a distributed server providing terminal emulation, printer emulation, application access and file transfer for IBM mainframes and AS/400 systems. It also manages the physical as well as the lower-level SNA protocols. Although IBM would like to replace it with Advanced Peer-to-Peer Networking (APPN) SNA, as the traditional legacy (host-centric) protocol, it remains very popular in AS/400 and mainframe sites. Consequently, "It plays well in the enterprise," says McCourt. Customers include Ford Motor, John Deere, Federal Express and UPS — all of which are Fortune 500 companies. International customers include British Telecom, Nomura Bank and Volkswagen among others.

Brixton also has developed a "reverse gateway" or "virtual mainframe" for the 180,000 3270 terminals out there, according to McCourt. The CNT Brixton PU5 SNA Server and PU5 Applications Toolkit implement the appropriate level of SNA's PU4 and PU5 functions to integrate 3270s into open systems. For

example, British Petroleum South Africa uses the PU5 Server to connect 500 3270 terminals to UNIX-based applications.

If you're using HP's OpenView, Brixton's Brx-OpenView captures and converts OpenView alarms into SNA alerts. CNT Brixton SNA servers are OEMed by Digital, IBM, Sun and Sequent, but not by HP which has its own mainframe-to-UNIX connectivity products.

Other products include Brixton Integrated Gateways, a set of channel-attached and LAN-attached turnkey gateways blending Brixton and CNT Channelink technologies. CNT's Brixton and Channelink products are sold directly to end-users and OEMs in the United States, as well as through subsidiaries in the United Kingdom, France and Germany.

Belying the assumption that the mainframe is dead or dying, CNT revenues have grown 433 percent since 1990. Revenues in 1995 however, only matched 1994's \$80 million. Going forward, capitalizing on connecting corporate mainframes to the Web and Internet is important. "There's an opportunity to deliver 3270 data streams to every desktop with a browser."

—George A. Thompson,  
Senior Editor



# BUILDERS

**HOW DO YOU BUILD  
A DATA WAREHOUSE IN 90 DAYS?  
CALL THE BUILDERS.**

**DATA  
WAREHOUSE**

**Grand Opening**

No other company in the world can match Information Builders' experience in accessing, migrating, and analyzing data within a multi-platform environment. That's why we've been able to develop the methodology, tools and integration services to make your data warehouse project a rapid success.

We'll help you build your data warehouse in manageable stages that provide demonstrable payback in as little as 90 days. Our proven "protocycling techniques" let you learn as you go to avoid costly mistakes. And our full line of data

access, data migration, and reporting tools guarantee that your data will be transformed into useful, intelligent information faster than you ever thought possible.

So why wait years for uncertain results when you can start enjoying real benefits in just a few months. Call "The Builders" today at 1-800-969-INFO for a copy of our *Blueprint for Building a Data Warehouse... A Proven Approach for Rapid ROI*. We can even arrange a free telephone consultation with one of our Senior Data Warehouse Consultants.

CIRCLE 247 ON READER CARD

**800-969-INFO**  
In Canada Call 416-364-2760



Information Builders  
International User Group Conference  
May 19-22  
Marriott's Orlando World Center

**Information  
Builders**

EDA is a trademark of Information Builders, Inc., NY, NY 212-736-4433 E-mail: [info@ibi.com](mailto:info@ibi.com) WWW: <http://www.ibi.com>



# Data Warehouse Insurance

## *HP, Holistic Systems And Sybase Help Penn National Insurance Hone A High-Performance Information Warehouse System*

As part of the ongoing challenge to keep underwriters satisfied and operations profitable, Penn National Insurance (PNI; Harrisburg, Pa.) recently attained significant information systems performance improvements. Determined to get internal customers faster access to information with which they can manage their personal and commercial property and casualty insurance businesses, PNI moved from mainframe-based management information on multiple systems to a data warehousing solution under a client-server architecture. The Information Warehouse project team transitioned that system twice until it met PNI data analysts' standards.

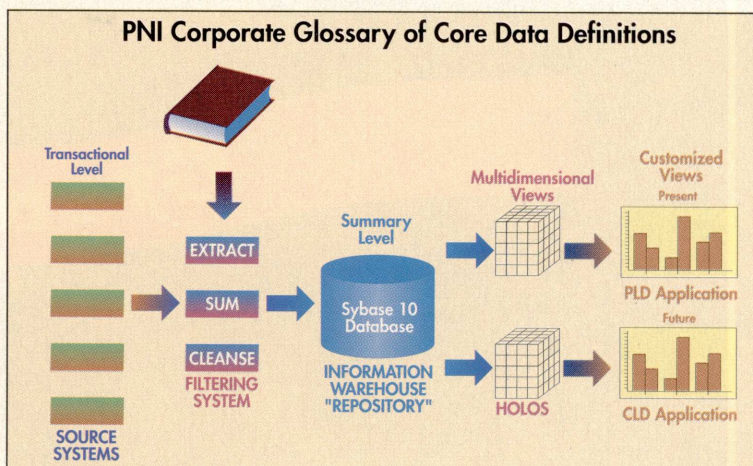
Just three years ago, PNI employees were receiving Personal Lines Division (PLD) profitability and performance summaries through monthly hardcopy reports dumped off a mainframe. The report content was voluminous and disjointed. Analysts were spending more time gathering data than analyzing trends. The process was cumbersome because analysts had to perform profitability analyses with bits and pieces of information from multiple

reports and data sources. PNI's conclusion? The mainframe just didn't provide tools to accomplish the types of in-depth information analysis PNI needed to make managerial decisions.

Today, the Information Warehouse team has built a 3 GB data warehouse solution that provides underwriters and decision makers financial OLAP in a timely fashion. This high-performance, client-server solution consists of Holistic Systems' Holos business intelligence software and a Sybase 10 database

messages about how they can help PNI's business.

Although PNI has a high-performance warehouse solution today, this wasn't the case when the system went live in June 1994. Under the initial data warehouse client-server architecture that specified Holos and Sybase running on a non-HP platform, underwriters complained that data display took too long. Once the complaints started coming in, the Information Warehouse project team realized that the number one



running on an HP 9000/K200 system. (see figure above).

With the Information Warehouse, PNI tried to provide underwriters with a single, common source of management reporting information. They now receive timely, high-quality data that is easily accessible from their computing desktop. Underwriters spend less time gathering data, which offers them more time and better ways to study the profitability and performance information. This benefit also extends to the insurance agents, who now receive better profitability reports and clearer

priority was to make the underwriters successful. The internal customers had to be convinced that the data warehousing solution would not only work to their satisfaction, but also would enhance productivity.

Solving the performance issues on the Personal Lines Key Results (PLKR) application became the team's biggest challenge. The PLKR application delivers aggregate information to support PNI employees who analyze insurance-related information (i.e., underwriting and claims adjudication) and make managerial decisions about the





I wake up and technology's different.

Our platforms are changing.

We're adding systems.

And our DR plan's left with  
some big gaping holes.

We need a company that can keep up  
with it all.

We need to be covered.

That means everything.

**Y**ou think you have a solid DR plan. But changing technology has a way of making plans look like Swiss cheese overnight. You need SunGard to fill in the gaps.

**We cover it all**, because we support every major platform. IBM & Unisys. Tandem & Stratus. DEC & HP. Sun, AS/400 & System 3x. RS6000 & NCR. And LANs & WANs. Virtually any piece of equipment for total peace of mind. All backed by planning and support experts that handle the headaches for you.

And let's face it. Things change. So SunGard lets you swap, upgrade or change your back-up configurations as your needs evolve. For ultimate flexibility.

Let us map out your comprehensive plan. Call **1-800-247-7832**.

Because if you're not covered, we have one piece of advice. Take cover.

**SUNGARD®**



The Disaster Recovery Experts

CIRCLE 165 ON READER CARD



# LETTERS

## vi-ing To Hear From You

Nice [UNIX At Large] piece in the March 1996 issue. I use vi all the time and everyone makes fun. Glad to see someone else appreciates the universality of this tool.

*David A. Wellman*

*FEMA Internet Support/Webmaster*

Way to go. [Fred Mallett's] article on vi in the [March 1996] issue caused me to re-subscribe! Keep up the good work!

*Tom Thurman*

*Principal Engineer*

*Rockwell Collins Avionics and  
Communications Division*

I never had any problem with vi, but it's really cool to find out about some new tricks! Thanks for the article.

*P. Dutko*

*EDS*

### THE SHOW MUST GO ON

I went to one of HP's seminars, one about upgrading to HP-UX 10.

I found it useful to go there, and the food was good too! The people were California-types, which livened things up quite a bit. When pitching HP's new fault-tolerant features, they had a "thunderstorm" in the studio, and the speaker continued aided by a flashlight!

*Steen Hansen*

*Computer Specialist*

*University Technology Services  
The Ohio State University*

*Address letters to HP Professional, 1300  
Virginia Dr., Ste. 400, Fort Washington,  
PA 19034. Fax: (215) 643-4827. Internet:  
SIMPSONCM@BOX101.CARDINAL.COM  
Letters may be edited*



PLD and PNI's insurance business.

PNI enlisted the help of regional consulting firm Information Technologists Inc. (ITI; Conshohocken, Pa.) to isolate the source of PLKR performance issues, and to ultimately design and integrate the Information Warehouse solution.

PNI and ITI together sorted through and tested several potential reasons for PLKR performance degradation. Was the SQL generated by Holos optimized? Was the Sybase database design impacting performance? Or, was it simply a lack of CPU processing speed? It was quickly identified that the hardware platform alone was the issue — the single CPU machine didn't have the processing power needed to handle the significant demands of the Holos and Sybase decision support application. In addition, the team suspected that the information management needs required a platform that provided not only increased processing speed, but also a multiprocessing architecture.

To prove PNI/ITI's theories, the Information Warehouse team performed five-, 10-, 15- and 20-user PLKR application benchmarks on several combinations of non-HP processors, and on an HP 9000/K200 multiprocessor. While running the 20-user benchmark of the Holos/Sybase/HP solution, the information display took an average of 300 percent less time than on the original non-HP processor. With PNI's average of 10 to 12 users tapping the application at any given time, real-world information display can occur even more quickly.

Upon seeing the HP results, PNI chose the HP machine. Then, they moved the Holos application and the Sybase database to the HP server with little effort and with no significant interruption to the production use of the system.

The Information Warehouse team's mission was accomplished. They were able to cost-effectively improve the data warehouse system performance to the satisfaction of PNI's internal customers by implementing a solution that didn't require ripping the existing system out of production, rewriting soft-

ware or redesigning the existing database. Now PNI's underwriters can quickly view and analyze Personal Lines performance data to help forecast whether their operations are helping PNI or dragging down the company's profitability.

The Holos application provides underwriters with dynamic analysis functionality, such as the ability to run "what if" scenarios. For example, if PNI incurs \$100,000 in loss in a certain state, how will that affect year-end profitability? PNI's data is not stagnant. With Holos, analysts can perform more in-depth analysis than they could with a simple report writer. Holos gives underwriters the ability to drill down and graphically view the data by various lines, including by state and by agent. These multidimensional data views can act as a second pair of eyes to analysts craving more data with which they can make decisions.

In addition, PNI's analysts don't have to be experts in SQL or relational database design in order to use Holos. The Holos application integrates tightly with the underlying Sybase 10 database. This seamless integration enables users to do complex data analysis, including dynamic retrieval of detailed data from Sybase, without worrying about the technical foundation of the application. Holos offers an easy to use front end, with a nice look and feel to it at each underwriter's desk.

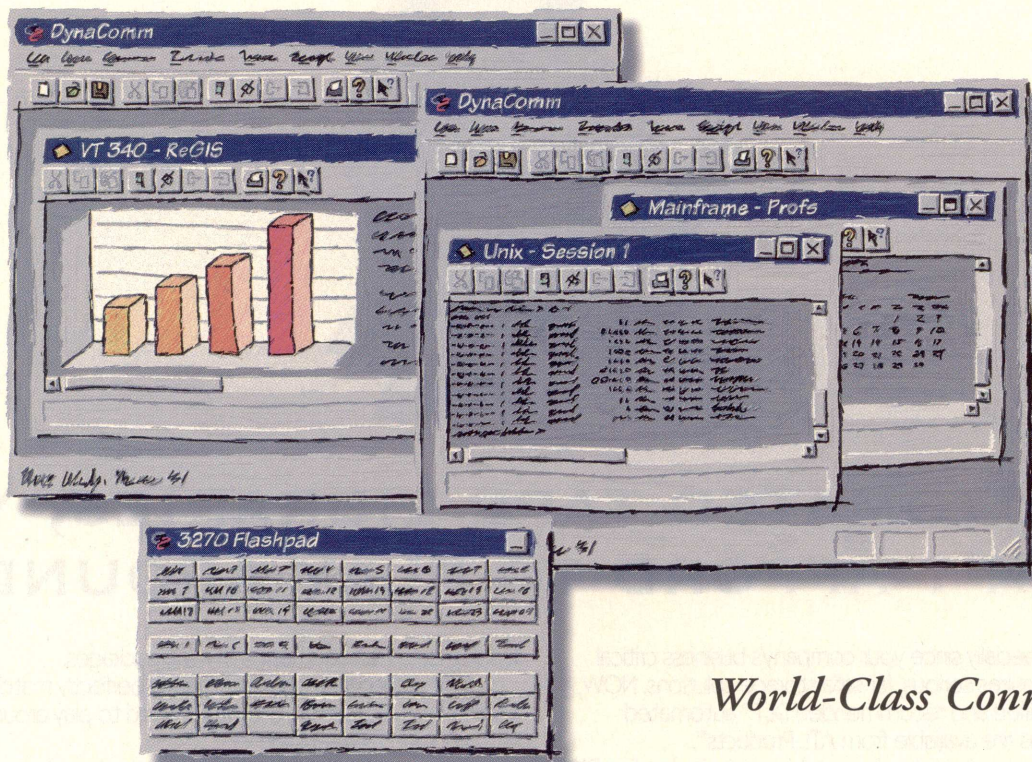
Sybase helped the switch over to a relational database paradigm, after years of working with corporate data stored in multiple flat files on the mainframe. PNI underwriting data now resides in one, accessible spot, and duplication of data isn't a concern.

The next information-systems application on the horizon for PNI — a profitability analysis application for its Commercial Lines Division (CLD) — will quadruple the data warehouse storage from 3 GB to 13 GB. Holos headquarters is located at 510 Thornall St., Ste. 270, Edison, NJ 08837. For more information, call (908) 321-6500 — *Cindy Todoroff, Corporate Project Manager at PNI.*



# The DynaComm Connectivity Series

## Enterprise-Wide Computing



### World-Class Connectivity

The DynaComm® Connectivity Series provides comprehensive terminal emulation and complete network connectivity for accessing the most popular host systems.

With the all new modular design, the DynaComm Connectivity Series allows you to create a host access emulation system that will fit your particular need. The DynaComm Connectivity Series starts with the core module which contains numerous standard emulations, full network connectivity and a world-renowned scripting development environment.

Added to the core module are DynaComm client options for almost any type of host including advanced DEC, DG, HP, IBM and Tandem. Simply by adding the DynaComm client option(s) that you need, you will have a customized connectivity solution at your fingertips. A single executable instance of the product supports multiple sessions (both asynchronous and synchronous).

Multi-platform support is also available. With versions for both 16- and 32-bit platforms, the DynaComm Connectivity Series will be equally at home on Windows® 95, Windows® NT™ and Windows® 3.x. The consistent user interface and functionality across all operating systems facilitates easy migration and reduced training and support costs.

#### Major New Features Include:

- A single executable instance for multiple emulation sessions (asynchronous and synchronous)
- OLE compliance
- Windows 95 and Office 4.x "look and feel"
- Add-on emulation client options that provide "plug-and-play" capability to fit virtually any host environment requirements
- Consistent scripting language compatible across all emulations

**DynaComm**  
by **FutureSoft**

12012 Wickchester Lane, Suite 600 • Houston, TX 77079  
(713) 496-9400 • Fax (713) 496-1090  
Nijverheidsstraat 12 • 2288 BB Rijswijk • The Netherlands  
31-70-390-7727 • Fax 31-70-390-7005  
Internet: [info@fse.com](mailto:info@fse.com) or <http://www.fse.com>

**For More Information Call: 1-800-989-8908**

© 1986-1996 Future Soft Engineering, Inc. DynaComm, FutureSoft and Future Soft Engineering are registered trademarks of Future Soft Engineering, Inc. Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corp. in the United States and/or other countries. All other trademarks are the properties of their respective owners or licensors.

CIRCLE 190 ON READER CARD

03/96-40A/13





## IN AUTOMATED TAPE LIBRARIES, YOU CAN'T AFFORD TO PLAY AROUND.

Especially since your company's business critical data requires serious, fail safe storage solutions. NOW, HP certified and recommended DLT™ automated solutions are available from ATL Products™.

These robust libraries combine industry leading DLT tape technology from Quantum Corp. with ATL's field proven automation technology to bring you the high performance solution you've been waiting for.

That's why HP selected ATL Products as its exclusive DLT automated tape library reference partner for their HP9000 Servers. And to assure you success, we're fully compatible with HP's Omniback™ and other

leading data management software packages.

With capacities and performance perfectly matched for the HP9000 system, there's no need to play around with your future needs either.

For years ATL™ has been defining the industry's technology standards, providing unparalleled field proven reliability and support. And by building our libraries to last for many years, ATL will support your future needs when your application become more demanding and enhanced DLT performance products are ready for integration.

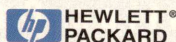
So - unless you can afford to play around - contact us now about our complete line of HP endorsed libraries.



### **ATL's ACL4/52 is Certified For Hewlett-Packard's HP9000 Business Servers.**

The ACL4/52 is ideal for heavy duty cycle applications such as OLTP and DSS. It features four DLT drives and 52 20-gigabyte cartridges for an available capacity of more than 1 terabyte. With data compression enabled, capacity is boosted to well over 2 terabytes. Each of the four DLT drives supports a sustained data rate of 1.5 megabytes per second in native mode, at least three times as fast as 8mm drives.

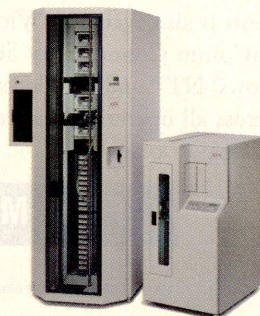
**ATL**  
PRODUCTS  
AN ODETICS COMPANY



**Quantum**

1515 S. Manchester Avenue, Anaheim, California 92802 USA  
800-677-6268 714-780 7790 <http://www.atlp.com/>

CIRCLE 241 ON READER CARD





# ATM...

Henry H. Wong

Its  
Time  
Has

# Come

Just as the eagerly anticipated networking technology of the 1980s is finally becoming an economic reality, the applications of the 1990s — multimedia, document imaging, collaborative computing, software distribution and video conferencing — have generated an almost insatiable demand for network bandwidth. Asynchronous Transfer Mode (ATM) has rapidly become networking's point of convergence.

A scalable, high-performance, broad-bandwidth technology, ATM can use the same protocol that is used on the desktop (through the LAN and across the LAN) to simplify net architectures. Because of its fixed-length cell format, ATM switches can economically ramp up band-





## ATM Technology

width availability from several megabits to hundreds of gigabits per second.

### CHECKING THE CELL STRUCTURE

THE TECHNOLOGY'S 53-byte cell structure enables support of isochronous and bursty traffic over a single transport. Cell relay structures enable networks to handle evolving corporate applications such as desk-to-desk video conferencing, multimedia conferencing, multimedia messaging, remote education, imaging tasks (including CAD/CAM), animation and cooperative activities.

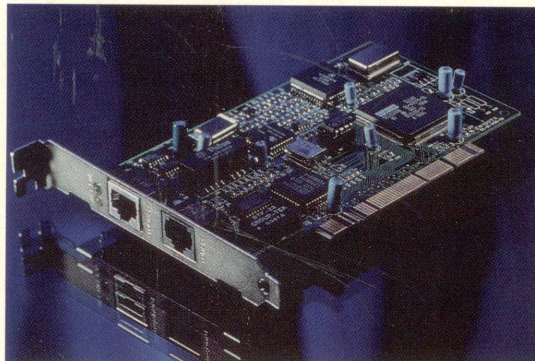
Using the cell structure, ATM switches and Channel Service Unit/Data Service Unit (CSU/DSU) can handle many streams of information simultaneously, interleaving cells from different sources and then re-assembling them at the receiving end into seamless text, unbroken voice or flicker-free video. Its end-to-end, connection-oriented service, which is compatible with LANs and WANs, reduces some of the expense, pain and risk of network conversion.

### WATCH FOR FALLING PRICES

WITH AN UNLIMITED budget, an organization could set up an ATM-only network infrastructure. However, most desktops will probably never require such high-speed, high-bandwidth interfaces to the network. So, while today's thin and thick networking cable isn't optimal, it doesn't have to be completely replaced with fiber-optic cable.

Today, network managers can implement ATM WAN backbones and preserve much of their investment in Ethernet/Token Ring adapters, cabling, concentrators, hubs and routers. However, they will still have to address what may be new terminology/technology such as Smart-Jacks, demarcation points, punchdown blocks and CSU/DSU.

Factoring in the cost of ATM hubs, NICs, port cards, fiber-optic cable,



*Fast Ethernet Adapter Cards like this offer a potential throughput of 200 Mbps.*

CSU/DSU and other components, ATM started out at a per-desktop cost of nearly \$8,000. In early 1994, the cost per ATM desk was about \$6,000. Early this year, it was \$1,000 for 25 Mbps ATM, and by the end of the year, it is projected to be about \$850. The technology is finally competitive with switching hub-based LAN technology, giving users 25 Mbps full duplex rather than 10 Mbps or 16 Mbps half-duplex.

Early implementation of ATM has been as a multiplexing technology because it can handle all types of communications traffic. As a result, it can optimize broadband pipelines by eliminating idle periods. To protect the network manager's investment and leverage existing technology, leading internetworking vendors provide an ATM path for supporting existing

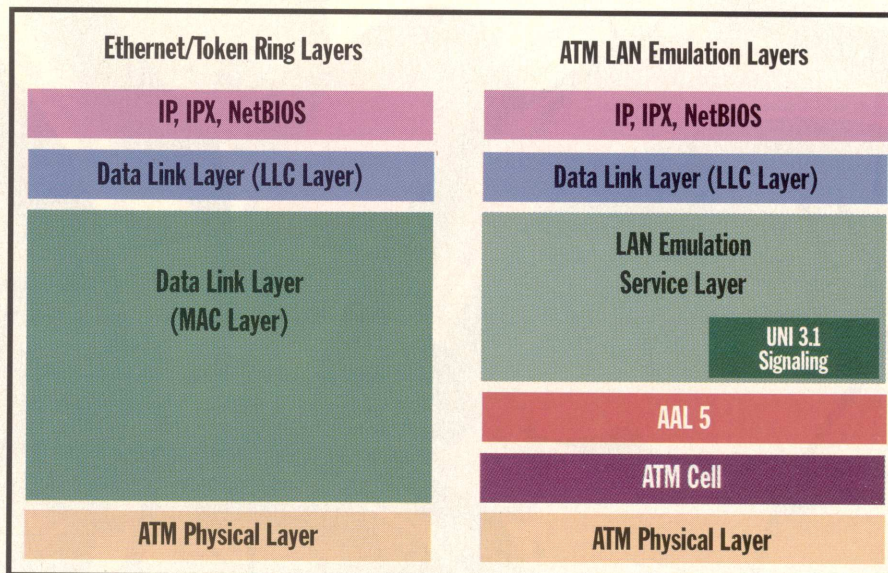
routers and hubs, and implementing schemes that connect present Ethernet and Token Ring LANs to the ATM backbone.

### NIC OF TIME

WORKSTATIONS use ATM NICs that connect directly to ATM switches through an ATM link. The NICs convert the message to ATM cells,

which the switch receives from one link and sends to the next link. Today's high-performance ATM NICs support the most widely used microcomputer buses but EISA is generally used for existing servers, and PCI is the bus of choice for future systems. The latest NICs support switched virtual circuits (SVCs) and permanent virtual circuits (PVCs), which conform to the ITU Q2 931 specification and all five current ATM Adaptation Layers (AALs).

ATM will first be applied to increase performance for backbone LANs and selected workgroups which require low latency and high performance and can cost-justify the added bandwidth. As a result, compatibility with existing networks and applications has been a prime concern for leading networking suppliers. Upgrading to an ATM backbone with ATM and LAN

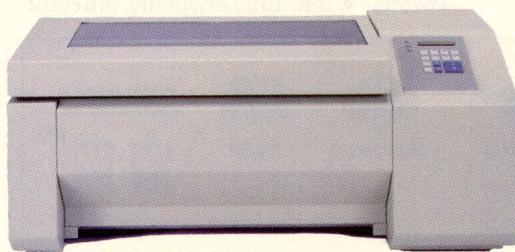


*Figure 1: The layered architecture of LAN emulation clients.*



# ANNOUNCING THE MOST RELIABLE, HIGHEST-PERFORMING, INVOICE HANDLING, BAR CODE PRINTING, DATA PROCESSING, WITH THE LOWEST COST OF OWNERSHIP IN ITS CLASS, LINE IMPACT PRINTER FROM TALLY!

T6045  
line impact  
matrix  
printer  
**under  
\$4,500!**

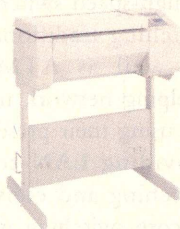


November 7, 1995  
Mannesmann Tally T6045

**The T6045 is an entry level line impact matrix** printer that's short in cost-but not in performance. From general data processing to bar codes & other industrial graphics, the T6045 can print up to 450 lines per minute, and can handle a 80,000 pages a month with ease.



**Versatility is the T6045's middle** name. It comes equipped with



**three** industrial graphics languages standard plus POSTNET, giving you a variety of options for graphics handling. And, with a standard parallel & serial I/O or optional Twinax/Coax

interface, most network setups aren't a problem either.

**In the cost of ownership category, the T6045** triumphs, **saving up to \$1,663 over its' closest competitors** in the first year of ownership. Isn't it time you printed on a Tally?

**JUST CALL 1-800-843-1347 EXT. 566** for more information, or contact your local reseller.

**Tally**®  
printers

**[ Making An Impact On The Way You Print ]**

a **mannesmann** technology company

CIRCLE 180 ON READER CARD



## ATM Technology

emulation equipped routers and switches increases backbone capacity without changing the balance of the network infrastructure. Protocol independence is vital in backbone network structures, because most carry multiple protocols including IP, IPX, SNA and NetBIOS.

### LAN EMULATION AND PIVOTAL SWITCHES

LAN EMULATION (see Figure 1) simplifies the network manager's job and gives workstations, servers, ATM bridges, routers and switches the appearance of traditional LAN devices. This allows existing LAN protocols and applications to work transparently over ATM. It also enables communication with other ATM devices on the network in a connectionless broadcast or multicast fashion.

**LAN switches boost  
network capacity by allowing  
dedicated, high-speed  
connections to be set between  
any client and its server.**

As a result, the deployment of multiplexed ATM allows the use of existing routers, bridges and servers that are directly connected to the backbone. These units can be upgraded with ATM interfaces running LAN emulation to boost their bandwidth while continuing to serve Ethernet and Token Ring clients.

A key component in the ATM structure is today's third-generation LAN switch. While fundamentally different

from bridges, routers and hubs in use today, they're really multiport bridges with added intelligence that allows for traffic filters and "directed" broadcasts. Each port is considered a separate segment and learns the MAC (media access control) addresses on the workstation on each segment. Increasingly, these switches provide one or more ports that support connections to workstations with high-speed 10/100 or 100 Mbps Ethernet LAN adapter cards.

The LAN switches boost network capacity by allowing dedicated, high-speed connections to be set between any client and its server. They not only boost capacity at the desktop, they increase backbone capacity when installed at the center of the network to link departmental LAN switches.

Depending upon the applications, today's organizations can segment their ATM networks based on price/performance requirements (see Figure 2). ATM-ready workstations and devices can be connected to ATM hubs and WAN routers and have direct access to the ATM WAN. Organizations with traditional LANs can use an ATM-ready router to obtain similar benefits without having to replace workstations or wiring. Higher-end multiplexers also are available that can connect traditional data devices, mainframe channels and video to a cell relay WAN network by supporting ATM on the trunk side. Some multiplexers also are available that support traditional LANs over a frame relay interface.

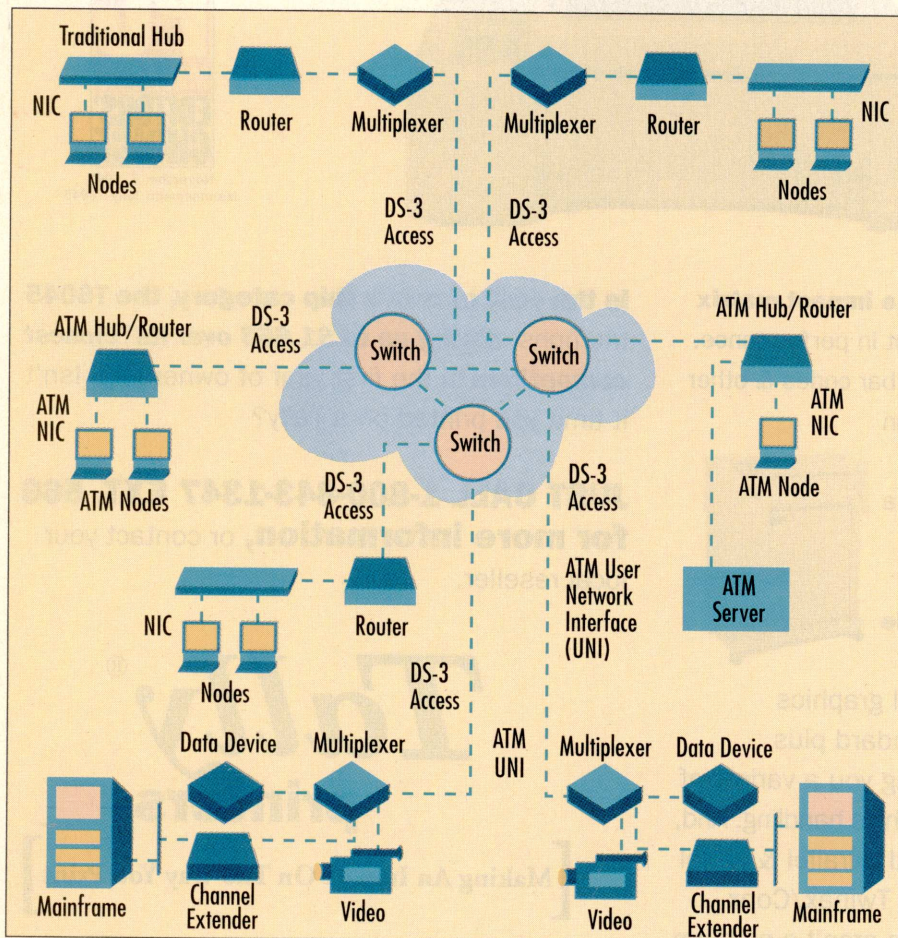


Figure 2: The diagram illustrates a mixed environment ATM WAN to multiple sites. Depending on the applications, ATM-ready workstations and devices can have direct access to the ATM WAN.

### EASING THE TRANSITION

TO SIMPLIFY THE transition to ATM, leading hub and router vendors now support high-speed switched networks — switching traditional LAN protocols as well as ATM. This approach is helping network managers move forward using their present platforms by providing LAN-to-ATM backbone switching and conversion. Hubs are the core switching platforms for desktops and backbones. They also support the physical LAN wiring and backbone router that connects the physical LAN segments.



Until networks are pure ATM, multiprotocol routers will still be required to support communications between logical LANs and segment virtual LANs in a logically defined collapsed backbone. Today's better routers help users get the most from their WAN bandwidth by incorporating WAN data compression that supports a wide range of WAN protocols. In making the transition, network managers have to ensure that their routers are not only compliant with all relevant standards, but that they provide interoperability, scalability and congestion management, because LAN and WAN growth is inevitable. In the WAN environment, remote management is important because organizations often have to carry out online and offline diagnostics and configuration changes.

#### "LEGACY" COMPATIBILITY

IT IS INCREASINGLY obvious that ATM will ultimately be deployed as a common technology within LANs and WANs because it is backward compatible with existing networks. This is important, because the network architecture will have to have the same appearance to management applications, regardless of scale or geography. It also will have to have the ability to be managed from any point on the network.

Today's ATM hubs, routers and multiplexers provide connections between ATM networks such as Ethernet as well as fractional T1/T3 and DS-3 wide area links. While ATM LAN emulation preserves present networking investments, it also allows users to easily and economically integrate ATM-specific applications into this environment. By providing bandwidth-on-demand, ATM solutions provide a wide range of solution options for network managers and users in the years ahead.

—Henry H. Wong is executive vice president of CNet Technology Inc. (San Jose, Calif.).

Would you like to continue to see articles on this topic?  
Circle on reader card  
yes 350 no 349

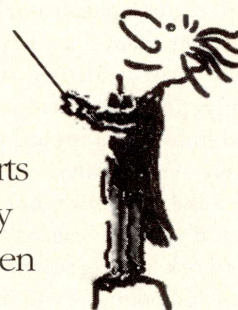
*Thanks to Harmonizer, over 3000 Aldon customers are humming a new tune about installing new packaged software releases.*

## A classic from the Aldon repertoire. Harmonizer.

Harmonizer allows you to make modifications to your software applications and still take advantage of new releases.

In fact, Harmonizer can save you 60-80% of the time you now spend putting up new releases.

Harmonizer identifies and reports all changes made by you and by the vendor on a new release, then merges your changes with the new release to create new production versions of your programs. It's that simple.



 **ALDON®**  
The Art of Change Management

**Aldon Computer Group**  
401 15th Street  
Oakland, California 94612  
(510) 839-3535  
(800) 825-5858  
FAX: (510) 839-2894

And the elegant Harmonizer user interface makes it easy to learn and use.

Conduct your own examination —for a free software trial, call toll free, 1-800-825-5858.

CIRCLE 163 ON READER CARD

### "Cardinal Business Media Sets Its 'Sites' On The Future!"

Cardinal Business Media, Inc., a leader in high-tech publishing, can now be seen on the World Wide Web! Visit all of Cardinal's high-tech publications with just one click...

<http://www.btb.com/cardinal>

Cardinal's Web Site Features...

- **CBM Books**
- **Digital Age**
- **ENT**
- **Enterprise Systems Journal**
- **HP Professional**
- **Imaging World**
- **INTERNETWORK**
- **MIDRANGE Systems**
- **Unisphere Magazine**



# Everybody Get Together, Got To Link One Another Right Now

When you think of system and network management, what images come to mind? Is it a beautiful mosaic — each piece carefully planned with a reason and purpose? Or, is it more like a practical patchwork quilt sewn together from a motley collection of PCs, workstations and servers, a hodgepodge of bridges and routers and hubs plus a myriad of wires? Most likely, it's the latter.

Take heart, it's not entirely your fault if you just realized that system and network management is more than troubleshooting. Vendors haven't been much help. But now you know that it's also about monitoring, maintaining tracking and distributing applications. It's about hardware. It's about software. It's about the infrastructure and all of its components. And while you're at it, don't forget storage management and security. Now, with the trend toward distributed systems, you have scalability problems staring you in the face. Your mother told you there would be data like this, didn't she?

## George A. Thompson

You had to rely on your own wit and wisdom. Yes, you found out the hard way that in the ultra modern IS cosmos, systems and network management (and possibly your fate as an IS manager) are inextricably linked. For example, more than 45 percent of HP's OpenView users have indicated (from a survey taken during the 1995 OpenView Users Conference), that they plan or have already merged their network and system management operations.

So it's no small wonder then that HP and other vendors in the system and network management business are rushing to consolidate their product lines, and insert the phrases like *integrated system and network management*, as well as add the words *enterprise* and *distributed* to their marketing vocabularies. Last year, Computer Associates (Islandia, N.Y.) bought Legent Corp. (Herndon, Va.). IBM intends to integrate Tivoli Systems Inc.'s (Austin, Texas; it's newest sub-

sidary) Tivoli Management Environment with its own NetView (which is based on HP's OpenView framework). And PC LAN vendor Symantec has plans to ship an enterprise suite by the end of this year. For its part, HP recently released a distributed version of OpenView Network Node Manager that can now manage more than 2,000 systems, its previous limit. For more detailed information, see this month's *Inner Networking* column.

Although the cost of your LAN/workgroup administration is probably the single most important motivation for the consolidation, it is not surprising that there's more than one trend at work here. As workgroup UNIX-based and PC-based LANs take on mission-critical proportions within the enterprise, the pressure is on IS managers to maximize network uptime and efficiency. So with that in mind, below you'll find the short list of vendors providing system and network management solutions to help you get through the maze.

### VENDORS

### PRODUCT & STARTING PRICE

**BMC Group Inc.**  
Houston, Texas  
tel: (800) 841-2031  
fax: (713) 918-8000  
www.bmc.com

**PATROL** Centralizes control of applications, data, databases and servers \$6,000; \$750 (Knowledge modules)  
**MetaSUITE** Administration, movement, optimization and protection of distributed data \$1,575  
**SQL\*Trax** Log analysis tool

**Boole & Babbage Inc.**  
San Jose, Calif.  
tel: (800) 544-2152  
fax: (408) 526-3055  
www.boole.com

**Command/Post** Systems management \$60,000  
**Ensign** Systems management \$10,000; \$250-\$1,000 (agents)

**Computer Networks Technology Inc.**  
Cambridge, Mass.  
tel: (617) 498-2300  
fax: (617) 498-2480  
www.cnt.com

**BrxOpenView** Co-management of HP and IBM networks \$8,000



VENDORS	PRODUCT & STARTING PRICE
<b>Computer Associates International Inc.</b> Islandia, N.Y. tel: (800) 225-5224 fax: (516) 342-5734 www.cai.com	<b>CA-Unicenter</b> Systems administration <b>CA-Prevail/XP</b> View and automate multiple sessions <b>CA-Paramount/XP</b> Storage management/Contact CA for all pricing
<b>Hewlett-Packard</b> Palo Alto, Calif. tel: (800) 637-7740 fax: none www.hp.com	<b>IT/Operations</b> Operations and problem management \$40,000 <b>IT/Administration</b> Consolidated system administration for UNIX and PCs \$26,000 <b>Network Node Manager</b> Network management \$15,999 (single license) <b>PerfView</b> Systems performance analysis \$8,000 <b>MeasureWare</b> System network app and database performance management \$1,400-\$2,000 (server agents) \$840 - \$1,500 (desktop agents)
<b>Legato Systems Inc.</b> Palo Alto, Calif. tel: (415) 812-6000 fax: (415) 812-6032 www.legato.com	<b>NetWorker</b> Storage management \$2,500 (UNIX); \$1,200 (NetWare/NT/SCO)
<b>McAfee/Saber</b> Santa Clara, Calif. tel: (800) 866-6585 fax: (408) 970-9727 www.mcafee.com	<b>BrightWorks</b> PC software metering, asset management, software distribution, help desk \$250/node (1,000 licenses) \$42/node (50 licenses) <b>SiteMeter</b> Software licensing meter \$44.80/node (1,000 licenses); \$20/node (50 licenses) <b>Site Express</b> Software distribution Win95 \$10.50/node (1,000 licenses); \$17/node (50 licenses) <b>NetShield</b> NLM protects file servers \$450 (up to 25 nodes)
<b>Microsoft Corp.</b> Redmond, Wash. tel: (800) 426-9400 fax: (206) 936-7329 www.microsoft.com	<b>System Management Server (SMS)</b> Software distribution, remote control of PCs, limited network monitoring \$650/server; \$55/client
<b>New Dimension Software Inc.</b> Irvine, Calif. tel: (800) 347-4694 fax: (714) 756-3900 www.ddddf.com	<b>CONTROL-M</b> Production control system \$20,995 (includes network management console) <b>CONTROL-R</b> Job restart system \$11,075 <b>CONTROL-O</b> Detection and automatic responses of systems events \$16,940 <b>CONTROL-B</b> Balancing and quality control in MVS \$29,150
<b>Novadigm Inc.</b> Mahwah, N.J. tel: (800) 626-6682 fax: (201) 512-1001 www.novadigm.com	<b>Enterprise Desktop:Manager</b> Managing distributed software configurations \$20,000; \$200/client <b>Enterprise Desktop: Administrator</b> Configuring and managing application versions \$20,000; \$200/client
<b>Platinum Technology</b> Oakbrook Terrace, Ill. tel: (800) 378-7528 fax: (708) 691-0718 www.platinum.com	<b>AutoXfer</b> Software distribution \$7,500; \$20-\$700 (agents) <b>Apriori</b> Trouble ticketing and problem resolution \$50,000 (10 licenses) <b>NetArchive</b> File backup \$3,000; \$2,000 (site-based client license) <b>Z/Team</b> Enterprise automation \$2,000 <b>AutoSys</b> Job scheduling \$10,500; \$1,000 (agents)
<b>Symantec Corp.</b> Cupertino, Calif. tel: (800) 441-7234 fax: (408) 252-4694 www.symantec.com	<b>Norton Administrator for Networks</b> Software distribution, virus detection \$44/node (1,000 licenses) \$58/node (10 licenses)
<b>Tivoli Systems Inc.</b> Austin, Texas tel: (800) 284-8654 fax: (512) 794-0623 www.tivoli.com	<b>Enterprise Console*</b> Automated centralized event console \$65,000/server <b>Inventory*</b> Enterprise view across distributed environments \$150-\$350/managed node <b>Courier*</b> Software Installation/Distribution \$150-\$350/managed node <b>Admin*</b> User Account Management \$150-\$350/managed node <b>Sentry*</b> Availability Monitoring \$150-\$350/managed node * runs only on Tivoli Management Environment
<b>Unison Software Inc.</b> Santa Clara, Calif. tel: (408) 988-2800 fax: (408) 988-2236 www.unison.com	<b>Maestro 4.5</b> Job scheduling \$15,000; \$1,500 (agents) <b>RoadRunner</b> Back up and storage management \$4,000; \$300 or \$2,000 (agents) <b>Load Balancer</b> Workload Balancing \$1,500 (master); \$500 (agents)





# Tips From The Edge Of UNIX Insanity

**After teaching UNIX classes for eight consecutive weeks — sometimes three different classes each**

week— finding time off seems to be on my brain lately. That would explain why I keep issuing commands like: **grep frederm /etc/passwd | /bin/vacation -bermuda-duration=2weeks**. So, with that in mind, I'm offering several "short subject" tips. Hopefully one or two will be of interest to you.

First, a note about a not-so-new patch that seems to have been missed by many people. When I mention the **newdisk** and **newdisk\_scan** commands, the usual reply from otherwise very competent system administrators is: "Huh?" These commands can be found in patch PHCO\_5881, and pulled from the support.mayfield.hp.com ftp site. These commands are very useful when you are adding new disks that do not have disktab entries.

The command syntax is very simple: **usage: newdisk [-v[vv...]] character\_device\_file**.

The **v** options make the command verbose. The device file should be the character (raw) file, and the disk should be attached and powered up. What this program does, is to query the disk using a SCSI info type access,

and use the information returned to create an entry for the disk in **/etc/disktab**. You then can copy this entry to add versions with the amount of swap you want on that disk, if any. The real beauty of this command is on Series 700s, as it also will create a **/usr/sam/lib/C/pd\_devinfo.tx** entry. This entry will allow sam to properly handle the new disk, and give you the ability to select the swap space amount if desired. This is great for after-market and new disks that do not have existing entries. The **/etc/newdisk\_scan** command is actually a script that calls **newdisk** for all possible devices, and ensures that all attached disks have disktab entries (and sam entries on Series 700s).

## BACKING UP IS HARD TO DO

Next up — [http://gis-ww.larc.nasa.gov/~jason/backup\\_solutions.html](http://gis-ww.larc.nasa.gov/~jason/backup_solutions.html) — a Web location brought to my attention by someone who wishes to remain anonymous. They were not doing what this comparison chart talks about; namely, system backup. The document (which compares several hardware products) might save a lot of time for some of you making large network backup solution decisions. Thank you Jason Austin.

## WHICH ROOT IS WHICH?

The user, or the top of a disk? In this case, a discussion of the **chroot** command, and one example of a use for it.



**chroot** allows you to specify a directory name as the root (/) level for a command (or program). For example, you can make a user's home directory root, so that if they enter a pathname like /data/file, it would look for the directory data in their home directory instead of /data at the system root level. The common use of the **/etc/chroot** command is for security. You can create a directory, for example, /unsecure-login, then put all commands needed in /unsecure-login/bin. Now when certain users log in, you create a shell for them with **/etc/chroot /unsecure-login /bin/ csh**. This makes the /unsecure-login directory their root level, so that /bin/csh is really /unsecure-login/bin/csh. This also prevents the user from being able to go above the newly assigned root level. All commands that this shell can execute must live under the new root directory. This means you can limit the commands accessible by only putting certain com-

mands into the /unsecure-login/bin directory. This is similar to using the restricted shell (rsh), but more configurable.

Another often overlooked use of **chroot** is to "fix" commands that require software to be installed at the / level (for example, if a program looks for its library files in /lib, and you don't want to put them there). The problem here is that all data files now must be under the root directory assigned by **chroot**. This is sometimes done with a secondary disk. Make the mount point root, and store all files and programs needed on that disk.

A nice save can be performed with **chroot**. I get tar files sent to me quite often where the files were archived with absolute pathnames. If you index a **tar** file and you see something like at the top of the next column:

```
$ tar tf xbill.tar
/net/gamehost/opt/xbill/bin/xbill
/net/gamehost/opt/xbill/data/highscores
```

This can be a problem to **untar**, as **tar** will try to put the files back on /net/gamehost, which does not exist in my network. The workaround to **tar** not having a target option, is to use **chroot**. The following commands are an example of this:

```
$ su
Password:
# mkdir -p /tmp/bill
# cp /bin/tar /tmp/bill
# mv xbill.tar /tmp/bill
# /etc/chroot /tmp/bill /tar xf /xbill.tar
# ls /tmp/bill/net/gamehost/opt
xbill
# mv /tmp/bill/net/gamehost/opt/xbill /usr/games
```

We created a scratch directory to **untar** the file into, then put the command we needed in the directory (cp /bin/tar /tmp/bill). Because **tar** will not be able to go above the new root, we also had to put the tarball file (xbill.tar) into /tmp/bill. Next we issued the **chroot** command (it must be run as root), with



RETHINK YOUR  
SERVICE ASSUMPTIONS

## HP and Sun Service Make a Lasting Difference.

Contemplating a change? Maybe it's time to rethink your service assumptions. Polaris has new, flexible, reliable alternatives for HP 9000 and Sun users that will make a lasting difference.

We will show you how to take better advantage of your resources, capitalize on new trends in computer service, and get a better return on your service investment.

Find out about your options. Call **800-541-5831** today.

### Custom Service Plans

On-Site Maintenance  
Self-Maintenance  
Software Support

### Education Services

Maintenance Training  
SunSoft Authorized  
Training

### Expert Support

Help Desk  
Parts and Systems

See our homepage: <http://www.polaris1.com>

**POLARIS**

The Leader in Independent UNIX Systems Service

CIRCLE 200 ON READER CARD



/tmp/bill as the root, and **tar** being the command executed.

This untared the file with the new root, therefore, it created /tmp/bill/net/gamehost/opt/.... All that remains is to **mv** (move) the directory where it belongs, in this case /usr/games.

### HANDY TIPS FOR HP-UX 10

On HP-UX 10.x, there is a command that I have not yet seen many people using — which surprises me a bit. The command is **/usr/sbin/setup**. It is a menu-like program that can perform the following tasks: set the system clock/timezone/nodename, assign passwords to system logins if they do not already have one and add users. It can be handy at times, especially if you don't remember off the top of your head the new SVR4 pathnames, like /etc/rc.config.d/net-conf where the hostname is stored.

Finally, on HP-UX 10.x, there's a command **/usr/sbin/setuname**. It

can set the system name (**-s**) — you know, the one returned by **uname** — it is typically "HP-UX." It also can set the node name (**-n**), returned as the second field in a **uname -a**. There is a **-t** option to make the changes only temporary (till the next reboot).

Use this when you want to confound someone. Here is an example:

```
# uname -s -n
HP-UX puxy
# setuname -t -s Windoze -n Vectra
# uname
Windoze
# uname -n
Vectra
```

Who says PC's can't run UNIX software? — *We are sorry to say that Fred has been temporarily committed to a home for wayward system administrators. But, we're told they have access to 1200 baud modems and PCs in the cells. Humor him by sending E-mail to frederm@aol.com.*

Would you like to continue to see articles on this topic?  
Circle on reader card  
yes 306 no 305

## HELP DESK

Re: "A vi-able Alternative" in the March 1996 issue. "I see people often use :wq! to get out of vi without saving." I'm by no means an expert with vi but, doesn't :wq! force a write file and quit to be executed?

BTW, I very much appreciate the rest of the tips you offered in your article. I need all the help I can get! I do tend to use vuedit whenever I can versus vi because I don't remember all the vi commands very well.

Marcus B. Vail

Sr. CAE Applications Engineer

Fisher-Price Inc.

mvail@fpp.com

Major oops. :q! is used to exit without saving a file that has changed. :wq! does indeed mean write, and quit. And does so even if the file only has r rights, so long as I own the file. :wq! is used to write a file that you own, but do not have w rights to (force write). — FM

## Crazy Freddie will beat any published\* price.

### CLIENT/SERVER SOFTWARE FOR PC-UNIX CONNECTIVITY



- PC X servers from Hummingbird, NCD, SCO
- TCP/IP from all the major players
- PC Terminal Emulators
- Client/Server Desktop Faxing
- CoSession PC2X-UNIX-PC Remote Control
- And more!

**All at the lowest prices. GUARANTEED.**

Shop around and get the best price on the PC-UNIX connectivity software you need.

Then call Crazy Freddie and he'll beat it.

**It's that simple.**

**800-222-0550 • 908-287-2100**

UNIPRESS SOFTWARE

**Crazy Freddie at UniPress. He's insane.**

<http://www.unipress.com> • [unimarket@unipress.com](mailto:unimarket@unipress.com)

\*Prices must be currently-published end-user prices.

CIRCLE 137 ON READER CARD

## What Do These Clients/Servers Have In Common ?



### Downtime

**WatchDog-HA. The Reliable, Affordable Route To High Availability.** WatchDog-HA helps eliminate costly downtime by notifying administrators of potential application, system, and network problems and automatically recovers your system from failures. WatchDog-HA's flexible API enables administrators to write scripts or programs and interface with its server for corrective actions. WatchDog-HA high availability and failure management software maximizes application and system availability for disaster-recovery.

Relax, WatchDog-HA is "On Duty".

[www.protocols.com](http://www.protocols.com)

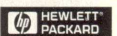
**800-797-2PPC**

T:415-433-2763/201-279-5495

F:415-433-5527/201-279-5497

E-Mail: [sales@protocols.com](mailto:sales@protocols.com)

**Professional  
Protocol, Corp.**

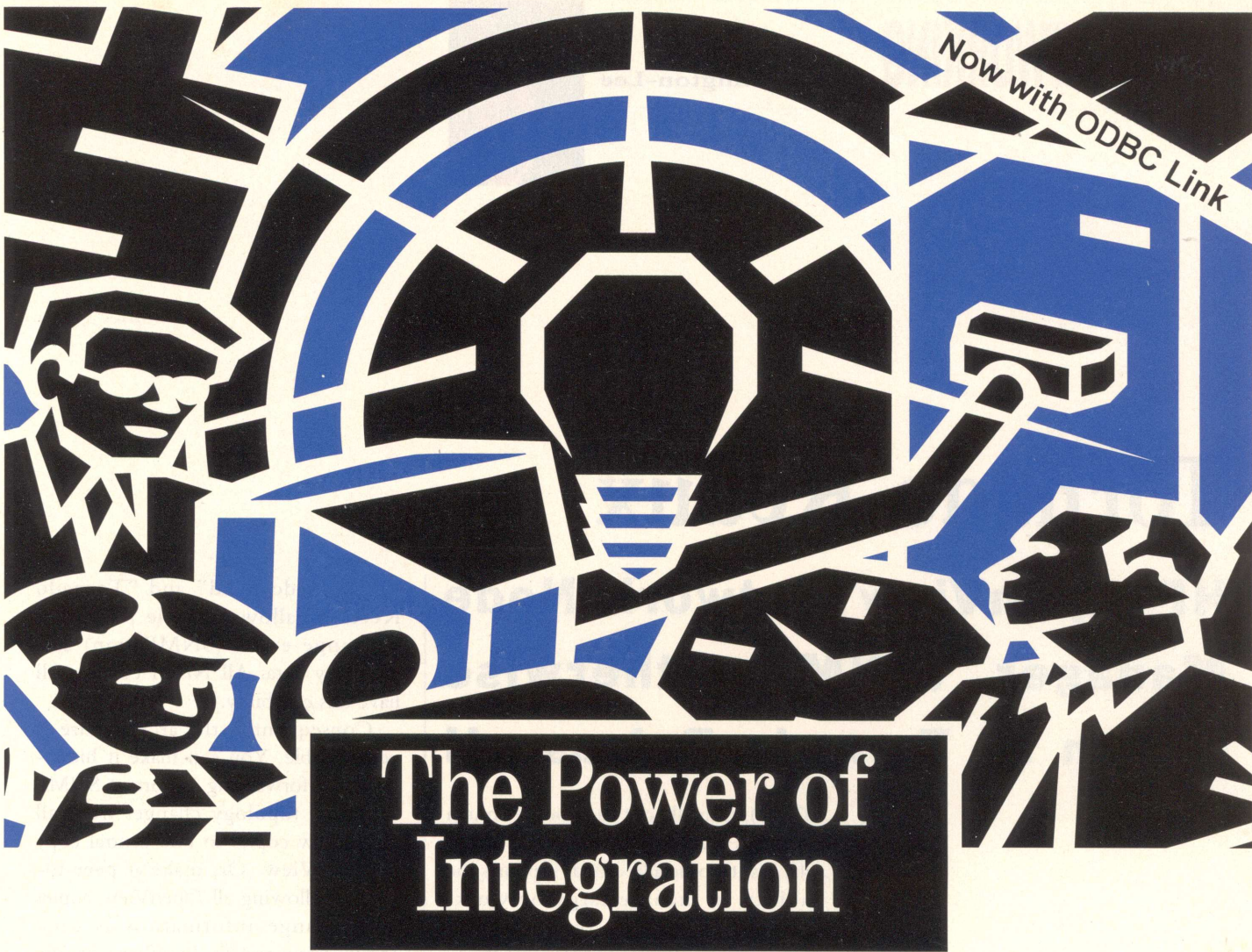


Channel  
Partner

All trademarks are trademarks of their respective owners.

CIRCLE 298 ON READER CARD



A stylized graphic in blue, white, and black. It features a large lightbulb in the center, with a hand holding it from the right. To the left, there are stylized faces of people. The background consists of geometric shapes and lines, creating a sense of connectivity and technology.

Now with ODBC Link

# The Power of Integration

## Unlock your HP3000 with DataExpress

If your end users can't reach the data they need, reach for DataExpress, the link you've been looking for between your HP3000 and Mac/PC desktops.

With DataExpress, users can pull information off your HP3000 without rekeying and without tying up your MIS people.

Best of all, they can bring data into PC and Mac applications that they already know and count on: Lotus, dBase, Excel, WordPerfect and more. With thirty output format options, DataExpress opens your data to more applications than any other integration package.

In addition to PC and Mac file formats, DataExpress can generate reports, and with the Report Designer option you get WYSIWYG capability, so you can see design improvements as you make them.

DataExpress is the #1 End-User Computing Environment available for the HP3000 today.

**For powerful solutions,  
call 1-800-ANSWERS**

*Your Integration Software Supplier®*

M. B. Foster Associates Limited  
50 Water Street  
P.O. Box 580  
Chesterville, Ontario  
Canada K0C 1H0

Tel (613) 448-2333  
Fax (613) 448-2588







# Tornado Redux

## HP OpenView Network Node Manager (NNM), otherwise known as Tornado Release II

(TR2), is finally out the door — much to HP's relief. HP OpenView NNM 4.1, as it's officially called, supports the ability to manage large networks through cooperative communications between multiple copies of OpenView. You could call it distributed management. Or, you could call it manager-to-manager communications. You also could call it a more scalable OpenView. And, you could use the following adjectives to describe it — friendlier, cleaner to configure, faster and much smarter.

But radically different? NOT! Underneath, it's basically the same OpenView. But with a tuned-up engine and some very useful enhancements, it suddenly becomes a very important product to IS/IT managers in companies trying to manage more than 2,000 nodes on a network. The most significant changes in OpenView NNM 4.1 are:

- the addition of two processes, nicknamed "Tornado Send" and "Tornado Receive," that allow one NNM to send/receive information to another
- the addition of filters for various NNM processes

"Tornado Send" and "Tornado Receive" allow multiple NNMs to exchange event (SNMP trap) and topology data. All NNM copies will have this capability.

Consequently, the architecture is very flexible. You can make it hierarchical — forwarding important SNMP traps and topology changes from all OpenView copies to one central copy of OpenView. Or, make it peer-to-peer — allowing all OpenView copies to exchange information as each administrator sees fit. In either case, the "Tornado Send" and "Tornado Receive" commands allow all copies of NNM across the enterprise to be synchronized with respect to network maps and important status events.

### GOING TO THE POLLS

As before, each NNM copy is still responsible for polling nodes (bridges, routers, hubs, etc.) and receiving SNMP traps (device failure alerts) in its own domain. Remember, because some networks have tens or even hundreds of thousands of nodes, and each NNM copy typically can't effectively manage more than 2,000 nodes, customers must divide the network into smaller "domains" of 2,000 nodes or less, on average.

But here's what's new: administrators can specify which critical traps or threshold-generated events should be forwarded cross-domain to other NNMs — either a central NNM or other peers. Because only exception



conditions are shared, the need to do active status polling over the WAN is eliminated. In other words, NNMs can talk to each other now. Before, they couldn't. But events represent only one kind of management data that administrators need to collect. Knowing network topology — what's on the network, how it's connected and where its located — is absolutely essential when trying to track down the cause of a network or system failure.

### GETTING ON TOP OF THE TOPOLOGY

Also as before, each NNM is still responsible for discovering the location of all nodes in its own domain at start-up. What has changed is this: multiple NNMs can initiate a large-scale synchronization of topology information across all domains (for example, across a wide area). Once this is complete, each NNM has a complete topological picture of the entire network in its SQL database (regardless of whether it is Ingres or Oracle).

## It's basically the same OpenView NNM, but with a tuned-up engine.

After this initial map synchronization is complete, changes to network topology may be propagated from one NNM domain to another. As a result, for the first time in OpenView's history, administrators using one NNM copy can actually get their hands on network layout information gathered by other NNMs using HP-provided tools. For both SNMP traps/events and topology changes, the administrator determines which filters to apply when going forward, to restrict exactly what events or changes should be shared across the domains.

As one might expect, the filters are key to manipulating these new OpenView capabilities to full advan-

tage. Domain filters enhance NNM's polling flexibility, making the product easier to configure and use. Inter-domain filters ensure that only pertinent information is shared across domains, reducing bandwidth requirements.

Map filters are important for tailoring operator views to only that portion of the network for which the operator is responsible. Learning how to use the filters will be the OpenView user's biggest challenge. Hopefully, a collective wisdom on proper filter usage will accumulate rapidly and disseminate quickly, especially if HP assists in the education process. So, Tornado II is not a radical change. But it is a change for the better. And that's good for everyone. — *Do you think Tornado II will clear the air? Or do you see stormy weather up ahead? If so, warn Jill at [huntinga@mcgraw-hill.com](mailto:huntinga@mcgraw-hill.com).*

Would you like to continue to see articles on this topic?  
Circle on reader card  
yes 304 no 303

OUR 15th YEAR

## QUALITY HP WORKSTATIONS - WITHOUT THE HP PRICE

RENT • LEASE • BUY

Immediate Delivery On Most Items

## QUALITY MAINTENANCE FOR HP WORKSTATIONS

Ask About Our RAPID REPLACEMENT Low Cost Maintenance Programs Which Include On-Site Spares

- 700 SERIES: All Models
- X-STATIONS: ENVIZEX, C270X
- All 300, 400T and 400E Series
- Memory, Features & Disc Upgrades for all Workstations
- CPU Upgrades: All Models

*More Than 1500 Satisfied Customers  
Throughout The USA and Worldwide*

For technical info, specs or pricing  
call Mordy or Carol



**C.S.U. Industries, Inc.**  
395 Pearsall Avenue, Cedarhurst, NY 11516  
(516) 239-4310 FAX (516) 239-8374

CIRCLE 213 ON READER CARD

## BIG on Power.

ERICOM SOFTWARE'S

## PowerTerm

INTER-CONNECT SERIES

**The most powerful PC terminal emulator  
At the lowest price.**

- Lots of terminal types for UNIX, VMS, AS/400 & IBM Mainframes.
- VT420, WYSE 60, DG, SCO, 3270, 5250 and more.
- File transfer, scripting, API and more.
- 32-bit NT & 95 versions – DOS too!
- Includes Newt TCP/IP stack.
- FREE copy on the Web at:  
[http://www.unipress.com/free\\_evals](http://www.unipress.com/free_evals)



800-222-0550 • 908-287-2100

2025 Lincoln Highway • Edison, NJ 08817  
<http://www.unipress.com> • [info@unipress.com](mailto:info@unipress.com)

All trademarks acknowledged.

CIRCLE 138 ON READER CARD





# Windows 95: Little Software Of Horrors

**Like the *Friday the 13th* movie series, upgrading to Windows 95 isn't for the faint of heart. Like so**

many similar fearful tales, my story starts out innocently enough. A friend, who started a network-related software company, asked me to write about his product. There was one catch: The software runs on Windows 95, meaning I'd have to migrate my NetWare-connected PC from Windows 3.1 to Windows 95.

OK, I thought, here's a legitimate business reason to switch to Windows 95. Far from a technical neophyte, I assumed I'd have little trouble upgrading because I've dealt with IRQs before and I knew to back up everything to protect myself and so on. Consequently, I promised my friend I'd get back to him in three days with a proposed schedule and cost estimate to do the project. I bought the Windows 95 upgrade package that evening. The very next morning, after warily noting the meager documentation, I started the installation program. Prompt after prompt after prompt, I obeyed. So far, so good ... until the screen went dark about 45 minutes later.

## IT'S DEAD, JIM

After nervously waiting "a few minutes" (as instructed by the user guide), I

gave it the "three finger salute" (rebooting with [CTRL]-[ALT]-[DEL]). Then, I tried the reset button. No ROM BIOS start-up message. No disk-drive LED activity. No noise whatsoever. Nada. With the exception of the constant humming from the power supply fan, my system was dead.

I turned the system off. I waited about five or six seconds, and turned it on again. No way. I was met with cold, dark silence. This meant I couldn't even restore the system with the backup DOS 6.22/Windows 3.1 boot disk I'd so cleverly created (or so I thought at the time).

A long-distance call (at my expense) to Microsoft's technical support line proved fruitless. Despite my protests that the system had worked perfectly under Windows 3.1, the support specialist told me the problem was "in the hardware, and we don't solve hardware problems." End of conversation. No suggestions about checking Microsoft's Web site for problem reports, looking for interrupt conflicts, or the like.

Next, I called the local computer store where I bought my system which uses Intel's "Zappa" motherboard with the Triton chip set. So, they told me to call Intel. At least they gave me a toll-free number. They promised that, if Intel couldn't help, they'd take a look at the system the next day. A call to Intel revealed two things: An undocumented DIP switch on the motherboard could clear and reset the ROM BIOS — thus



giving my system new life. WHEW! Unfortunately, I had to clear and reset the ROM BIOS each and every time I rebooted or restarted my computer. A time-consuming and bizarre process. And, it was just not acceptable, which leads me to part two: an upgrade of the ROM BIOS was necessary to run Windows 95.

After downloading and running the appropriate BIOS upgrade, which worked perfectly (thanks Intel), I figured a fresh start was in order. I tried to uninstall Windows 95. Although the uninstall utility returned my system to DOS 6.22/Windows 3.1 functionality, it didn't operate quite as well. First, it failed to delete any of the Windows 95 files in my C:\WINDOWS subdirectory. I had to do it manually, including clearing the "hidden" and "read only" file attributes from them. It also totally scrambled my Windows 3.1 Program Manager icons, thus forcing me to rebuild them — another time waster.

More than a bit peeved, allow me to be cynical for a moment: I suspect that Microsoft is aware of these kinds of problems but simply instructs its support personnel to do as little as possible to help Windows 95 users, who, after all, didn't generate much income for

Bill G. Thanks, I needed that.

Did I mention it's been four days now. I had to call my friend and tell him I couldn't deliver the proposal I'd promised. Because he is also a potential client, it's not the best way to start a business relationship. Fortunately, he was willing to wait longer.

## IT'S BAAAAACK

Filled with confidence over beating the Windows 95 beast, I headed into a second installation. But the second-time was identical to the first: same BIOS crash, same fix — clear the BIOS with the DIP switch. I felt like Bill Murray in *Ground Hog's Day*. Same problem. Same fix. Same frustration.

Of course, no one at Microsoft had ever heard of such a problem, and I talked not only with telephone support personnel but product-management level people about it at the Networld+Interop trade show in Las Vegas. Engineers at another Interop exhibit, where a Windows 95 "first aid" software kit was available, said flat out I had a defective motherboard. Meanwhile, after a little snooping around in the system and the setup program I "sort of" fixed the problem.

By resolving a couple of interrupt conflicts not accounted for by the BIOS' Plug and Play feature, I can now reboot or restart the system without clearing and resetting the BIOS *most of the time*. However, the problem still pops up when I make changes in my printer or COM port configurations. Then, I have to clear and reset the BIOS again. It's all very horrifying.

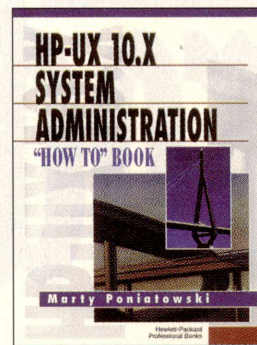
And there's still that proposal ... —Jim Carr, a Saratoga, Calif.-based freelance technology and business writer, welcomes any suggestions (short of dumping the PC in the pool) on how to get Windows 95 running properly. Send E-mail to 73561.1577@compuserve.com.

Would you like to continue to see articles on the topic?  
Circle on reader card  
yes 308 no 307

## WIN95 OR BUST

Before upgrading any PC to Windows 95, here are a few proposals of my own to protect the uninitiated:

- **BACK UP EVERYTHING**, from configuration files to data files.
- **Create a boot disk that will let you log the PC into your server.** Then test the disk to make sure it works.
- **Make sure you have the latest revision of your system's ROM BIOS.**
- **Tell Windows 95 to make the startup disk during the installation; it will allow you to return to your original environment.**
- **Use Plug and Play peripheral cards whenever possible to alleviate interrupt conflicts.**
- **Here's the best advice: Buy PCs with Windows 95 already installed.**



**Learning  
HP-UX  
10.x is  
now  
Easy!**

**HP-UX 10.x SYSTEM ADMINISTRATION HOW-TO BOOK** is the only HP-UX 10.x system administration book available. Author Marty Poniatowski—who wrote *THE* definitive source on HP-UX 9.0—applies the same successful "How-To" formula in this edition.

Contents include...

- HP-UX System Set-Up
- Networking
- System Administration Manager (SAM)
- Where Are Your HP-UX Resources Going?
- HP VUE and CDE
- Shell Programming for System Administrators

Don't miss this opportunity to learn HP-UX 10.x from *THE* expert.

**Use the coupon or call 1-800-285-1755 to order**

### HP-UX 10.x SYSTEM ADMINISTRATION Order Form

Please send me \_\_\_\_\_ copy(ies) of **HP-UX 10.x SYSTEM ADMINISTRATION HOW-TO BOOK** at \$36 each, plus shipping. CA, CT, IL, ME, NJ, NY, PA and TX residents add appropriate sales tax.

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_  
State/Zip \_\_\_\_\_  
Phone \_\_\_\_\_

**\*Shipping:** In the U.S., \$4 for the first book, \$2 for each additional book plus \$1.50 handling. Outside the U.S., please call (908) 225-2727 for shipping information.

☐ **Check Enclosed** (Payable to Cardinal Business Media, Inc.)

**Charge to:** ☐ VISA ☐ MC ☐ Amex

Acct. # \_\_\_\_\_

Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

☐ Check here for a **FREE CBM Books catalog.**



**Mail To:** CBM Books  
c/o Whitehurst & Clark  
100 Newfield Avenue  
Edison, NJ 08837

Distributed for PTR Prentice Hall.

HPT0596



# *new* Products

## SOFTWARE

### PC DOCS Releases DOCS Open

PC DOCS Group and Verity Inc. announced a DOCS Open version integrating Verity's search engine technology. The integrated product will allow users to index and retrieve documents from multiple formats.

DOCS Open is a client-server document management system that offers a secure infrastructure to store, locate and manage corporate information. DOCS Open works in virtually any computing environment searching for information across multiple servers and remote sites.

Contact Verity, 1550 Plymouth St., Mountain View, CA 94043; (415) 960-7600; [www.verity.com](http://www.verity.com); [info@verity.com](mailto:info@verity.com).

*Circle 399 on reader card*

### Frontier Technologies Unveils Intranet Genie

Frontier Technologies unveiled a ready-to-use Intranet solution designed to bring the benefits of the Internet computing paradigm to businesses that do not have extensive in-house computing expertise.

Intranet Genie offers — on a single CD-ROM — the client and server software required to install a secure, fully-functional Intranet. The components include Frontier's Windows NT-based SuperWeb Server, complete with advanced search capabilities and numerous small applications, as well as client software, including an Internet browser, Web administration and authoring tools, and secure E-mail.

Contact Frontier Technologies Corp., 10201 N. Port Washington Rd., Mequon, WI 53092; (414) 241-4555; [www.frontiertech.com](http://www.frontiertech.com); [info@frontiertech.com](mailto:info@frontiertech.com).

*Circle 397 on reader card*

### Platform Computing Expands LSF V2.2

Platform Computing Corp. released LSF (Load Sharing Facility) Version 2.2. LSF is

the de facto standard in load sharing and batch queuing software for a broad range of heterogeneous UNIX systems. With LSF, interactive, batch and parallel jobs are continuously distributed across the network, making full use of all workstations and servers.

With the release of LSF Version 2.2 comes the introduction of a layered LSF product, LSF-PJS (Production Job Scheduler). The optional LSF-PJS integrates heterogeneous server systems to create a "virtual mainframe." Job processing is done according to user-defined calendars. LSF-PJS supports job failover and dynamic server selection for each job.

Contact Platform Computing Corp., 5001 Yonge St., Ste. 140, Toronto, ON M2N 6P6; (416) 512-9587; [www.platform.com](http://www.platform.com); [info@platform.com](mailto:info@platform.com).

*Circle 395 on reader card*

### NobleNet Announces EZ-API Family

NobleNet Inc. announced its EZ-API product family of commercial "component APIs." Each EZ-API incorporates NobleNet's "OneDriver" client-server architecture. OneDriver technology transforms industry-standard APIs such as Microsoft's ODBC API and Novell's Telephony Services API (TSAPI) into off-the-shelf, re-usable, multi-platform "component APIs" that developers can embed in their distributed applications. Developers can customize the API and add their own business logic by modifying wrapper source code or by generating additional communications software with NobleNet's EZ-RPC compilers.

The OneDriver ODBC SDK costs \$2,500 per server for an unlimited number of users. Supported client platforms are Windows 3.1, Windows 95 and Windows NT. Supported server platforms are HP-UX, Windows NT, Sun Solaris and IBM AIX. The OneDriver TSAPI SDK is priced to meet individual business models. Supported client platforms are Windows 3.1, Windows 95 and Windows NT. Each

client platform supports both Novell's SPX and TCP/IP communicating with a NetWare-based TSAPI server.

Contact NobleNet Inc., 337 Turnpike Rd., Southborough, MA 01772; (508) 460-8222; [www.noblenet.com](http://www.noblenet.com); [sales@noblenet.com](mailto:sales@noblenet.com).

*Circle 394 on reader card*

### Wind River Systems Licenses Epilogue's Envoy SNMP

Epilogue Technology Corp. and Wind River Systems Inc. announced a licensing agreement that will allow Wind River to offer Epilogue's Envoy SNMP and Emissary SNMP MIB compiler as optional products for its Tornado cross-development environment for embedded applications. The terms of the agreement give Wind River resale rights to Epilogue products, and will allow Tornado users to develop their own SNMP solutions for embedded applications.

Tornado consists of integrated components: the Tornado tool suite, a set of powerful tools and utilities on the host and the target; VxWorks, a powerful and scalable real-time operating system which executes on the embedded target processor; and a full range of communications options such as Ethernet, serial line, ICE or ROM emulator for the target connection to the host.

Epilogue's Envoy and Emissary SNMP technology will be offered as optional products for the Tornado development environment allowing Wind River customers to develop their own real-time SNMP applications. Tornado offers networking support for embedded, real-time applications by adding TCP/IP sockets, NFS client and server, Zbuf (or No Copy TCP/IP), CSLIP, RPC, ftp, rlogin, telnet, bootp and SNMP to the VxWorks RTOS. By incorporating Envoy and Emissary, VxWorks is fully compliant with SNMP, and extends support for MIB-II.

Contact Wind River Systems 1010 Atlantic Ave., Alameda, CA 94501; (510) 748-4100; [www.wrs.com](http://www.wrs.com); [inquiries@wrs.com](mailto:inquiries@wrs.com).

*Circle 393 on reader card*



Interex Presents

# HP WORLD '96

See hundreds  
of exhibitors!

The Conference & Expo  
for Hewlett-Packard  
Computing Solutions

## Keeping You A Step Ahead

### Conference

- Hands-on solutions
- Peer-to-peer interaction
- Expert optimization techniques
- Real-world migration tips

### Expo

- Create high availability solutions
- Improve high-end performance and scalability
- Develop migration strategies
- Learn about new technologies
- Make the right purchasing decisions

Sponsored and managed by the  
Association of Hewlett-Packard  
Computing Professionals (Interex).

CIRCLE 150 ON READER CARD

**Get HP WORLD '96 registration  
and "Free Expo Pass" information!**

See us on the WWW at <http://www.interex.org/>

Call an HP WORLD '96 Conference Representative at 1.800.990.EXPO  
or e-mail us at [conference@interex.org](mailto:conference@interex.org).



August 4-9, 1996  
Anaheim, California  
Anaheim Convention Center



## Faxgate Integrates With HP OpenMail

Teubner & Associates announced that Faxgate now integrates with HP OpenMail. OpenMail users can use Faxgate to send and receive faxes with their E-mail systems. Other supported E-mail systems include VIM (Notes and cc:Mail), FFAPI (Microsoft Mail and Exchange), MHS and SMTP-based E-mail systems.

Contact Teubner & Associates Inc., Seventh and main, P.O. Box 1994, Stillwater, OK 74076; (800) 343-7070; [www.teubner.com](http://www.teubner.com); [faxgate.sales@teubner.com](mailto:faxgate.sales@teubner.com).

Circle 392 on reader card

## Racal's CMS Adds Management Capabilities

Racal-Datcom announced new applications for its CMS (Communications Management Series) software system, providing users with increased integration and control over WANs and LANs.

CMS Release 5.2 enables network managers to integrate management applications on HP 9000/700 workstations running HP-UX 9.5 under HP OpenView v3.3. In addition, CMS Release 5.2 also

includes SNMP management support for the Racal-Datcom PremNet 500 fiber optic backbone multiplexer and the Shiva LANRover devices.

Contact Racal-Datcom Inc., 1601 N. Harrison Pkwy., Sunrise, FL 33323; (305) 846-1601; [www.racal.com](http://www.racal.com).

Circle 389 on reader card

## The Dodge Group Ports To The HP 9000

The Dodge Group Inc. ported its Financial Data Warehouse solution to the HP 9000 server platform. Financial Data Warehouse is a client-server application incorporating a refined data model that can handle a wide range of financial and nonfinancial data. It can produce management, statutory, corporate and other reports in multiple currencies, for multiple time periods and at extremely high volumes required by a large enterprise.

Financial Data Warehouse runs on UNIX platforms from HP, Digital, IBM, Sun, as well Microsoft Windows and Windows NT clients. Databases supported include Sybase and Oracle. Price is approximately \$500,000 per site.

Contact The Dodge Group Inc., 404

Wyman St., Ste. 210, Waltham, MA 02154; (617) 672-8600; [www.dodge.com](http://www.dodge.com); [info@dodge.com](mailto:info@dodge.com).

Circle 391 on reader card

## HARDWARE


### Garrett Communications Offers Magnum 800E


Garrett Communications introduced the Magnum 800E Workgroup Hub for supporting 100 MB Fast Ethernet LANs. The new hub provides standalone 100BaseTX connectivity, as well as interconnection into larger networks. The 800E is a full-featured, IEEE 802.3u-compliant 100BaseTX Fast Ethernet hub.


The front panel includes eight shielded RJ-45 ports. There also is a rear-mounted bonus slot configured for any of a variety of media choices. The first port of the Magnum 800E has an up-link switch, eliminating the need for a special cross-over cable and allowing cascading of multiple Workgroup Hubs. Separate indicators display basic network activity for each port, including connectivity and activity infor-

**WE DON'T MAKE REPORTS. WE MAKE THEM APPEAR WHEN AND WHERE THEY ARE NEEDED . . . FAST!**


**ON USERS PCs OR NETWORK PRINTERS.**


 **REVEAL/CS™ DELIVERS THE REPORTS USERS NEED, WHEN AND WHERE THEY NEED THEM.** ACCORDING TO FORTUNE 500 FINANCIAL CORPORATION, "REVEAL/CS PROVIDES A MORE FUNCTIONAL WAY FOR USERS TO VIEW REPORTS." NOT ONLY DOES REVEAL/CS ALLOW ON-LINE VIEWING; BUT IT ALSO PROVIDES AUTOMATIC REPORT DISTRIBUTION TO NETWORK PRINTERS.


 **WITH THE POWERFUL WINDOWS® INTERFACE OF REVEAL/CS, USERS CAN INSTANTLY AND SIMULTANEOUSLY ACCESS SEVERAL CORPORATE REPORTS LOCATED ON DIFFERENT SERVERS. NO MORE PAPER CUTTING, BURSTING, SHIPPING, PILING AND DISPOSING. CUT PAPER COST. CUT DISTRIBUTION TIME. CUT SUPPORT COSTS.**

 **THE UNIQUE PINPOINT DISTRIBUTION™ AND SECURITY ENGINE OF REVEAL/CS AUTOMATICALLY TARGETS THE DELIVERY OF REPORTS TO THE RELEVANT USERS OR DIRECTLY TO NETWORK PRINTERS.**

**PAGE-LEVEL SECURITY ENSURES THAT QUALIFIED STAFF WILL REVIEW ONLY APPROPRIATE INFORMATION.**

 **USERS CAN GRAPHICALLY EXTRACT THE DATA THEY NEED FROM LARGE REPORTS AND CREATE SUB-REPORTS SPECIFIC TO THEIR NEEDS. REPORTS AND SUB-REPORTS CAN THEN BE EXPORTED PRONTO TO SPREADSHEETS.**

 **ACT NOW TO MAKE REPORTS APPEAR ON YOUR USERS' DESKS . . . FAST! CALL THE COMPANY THAT INVENTED ON-LINE VIEWING IN THE HEWLETT-PACKARD WORLD AND SEE FOR YOURSELF HOW EFFICIENT REVEAL/CS IS ON THE HP9000, THE HP3000 AND THE RS/6000.**

 **FOR A FREE 90-DAY REVEAL ROADMAP TO SUCCESS DEMO, PLEASE CALL O'PIN SYSTEMS NOW AT (612) 883-2888 AND ASK FOR ONE OF OUR REPORT DISTRIBUTION CONSULTANTS.**

 **O'PIN SYSTEMS**

INTERNATIONAL PLAZA, SUITE 635 • 7900 INTERNATIONAL DRIVE  
BLOOMINGTON, MN 55425-1510

[HTTP://WWW.OPIN.COM](http://www.opin.com)

CIRCLE 258 ON READER CARD



# READER INFORMATION

## CONCORDE TECHNOLOGIES CIRCLE 232

Concorde Technologies, Inc., "The Hewlett-Packard Experts" is an HP Channel Partner and Value Added Reseller of HP and third-party products for the HP 9000. Concorde's line of products includes HP 9000 systems, application software, CD-ROM solutions, RAM memory, mass storage peripherals and accessories. For the best prices, availability, warranty and support, **Concorde Technologies.** Call (800) 359-0282.

## IEM CO. CIRCLE 122

IEM offers affordable solutions for the HP environment, including 4mm and 8mm tape drives, autoseekers and carousels, QIC tape drives, optical drives, fixed Winchester drives, floppy disk drives and combination drives. IEM's new Building Block product line is a modular storage solution into which you can slide a number of different disk, tape and optical units. IEM offers an automated backup and archival software solution. Most IEM products are available with an HP-IB or SCSI interface for HP 1000, 3000 and 9000 computers. Call (970) 221-3005 or (800) 321-4671, or send E-mail to [info@iem.com](mailto:info@iem.com).

## INFORMATION BUILDERS INC. CIRCLE 247

Information Builders provides FOCUS, the world's most widely used 4GL, and EDA/SQL, the number one rated middleware solution. Available on HP-UX, MPE/iX and 35 other platforms. FOCUS is used for application development and decision support. EDA/SQL is used for data access, warehousing, migration and much more. Call (800) 969-INFO.

## KINGSTON TECHNOLOGY CORP. CIRCLE 281

Kingston Technology designs and manufactures memory upgrades for PCs, laptops, workstations and laser printers. The Kingston product line also features mass

storage subsystems and processor upgrades. Call (800) 835-2545, FAX (714) 435-2699.

## NEWPORT DIGITAL CORP. CIRCLE 246

Accelerator cards for HP 9000 Series 200 plus HP 310 and HP 320. Ten-fold performance improvement. Call (714) 730-3644.

## TEXAS ISA INC. CIRCLE 127

HP-IB and SCSI Tape and Disk Storage • Data Buffers • Power Management Solutions for UNIX and non-UNIX Platforms. Manufacturers of storage solutions for HP environment for 15 years. With our unique new line of Intelligent Automatic Startup and Shutdown devices, companies can now control the AC power ON/OFF schedules of local and remote UNIX systems. The ISA 7030, for instance, can warn of abnormal environmental conditions (temperature, vibration, humidity and smoke), and perform graceful shutdowns and startups. These new devices can significantly enhance system and data security, save time, energy and equipment costs. They also tremendously increase the convenience of managing local and remote systems.

For more information visit us on the World Wide Web:

<http://www.texasisa.com>,

E-mail: [info@texasisa.com](mailto:info@texasisa.com), or call (713) 493-5746/ (800) 361-2258.

## UNISON SOFTWARE INC. CIRCLE 499

Unison-Tymlabs is a supplier of networked systems management solutions for both UNIX and MPE. Product areas include workload management, storage management, print automation and desktop integration.

Call (408) 245-3000.

## WRQ CIRCLE 263

Makers of Reflection Series Software. HP terminal emulation for PCs and Macintoshes. Call (800) 872-2829.

# ADVERTISER INDEX

Reader Service Number		Page
163	Aldon Computer Group	27
241	ATL Products	22
171	Black River Computers	42
108	Bradmark Technologies, Inc.	15
294	Camintonn Z-RAM Corp.	8
232	Concorde Technologies	C2
213	CSU Industries	35
466	Data Assurance Corp.	10
190	FutureSoft Engineering Inc.	21
156	Hummingbird Communications Ltd.	11
122	IEM, Inc.	2
247	Information Builders, Inc.	17
150	Interex	39
281	Kingston Technology Corp.	1
180	Mannesmann Tally Corp.	25
155	M.B. Foster Associates	33
154	Mitchell Humphrey & Co.	47
246	Newport Digital Corp.	6
258	O'PIN Systems	40
200	Polaris Service Inc.	31
298	Professional Protocol Corp.	32
261	Simple Technology	13
165	SunGard Recovery Services Inc.	19
127	Texas ISA, Inc.	4
266	Technical & Scientific Application (TSA)	43
137	Unipress Software	32
138	Unipress Software	35
499	Unison Software	C3
	WRQ	C4
183	Xerox Corp.	5

# HP Professional

1300 Virginia Dr., Ste. 400  
Fort Washington, PA 19034  
(215) 643-8000 FAX (215) 643-8099

UNIX is a registered trademark of AT&T in the U.S.A. and in other countries.

MS-DOS is a trademark of Microsoft Corp.

Macintosh is a trademark of Apple Computer Inc.

X Window System is a trademark of MIT.

Windows is a registered trademark of Microsoft Corp.

Windows NT is a registered trademark of Microsoft Corp.

NetWare is a registered trademark of Novell Inc.

\*The publisher does not assume any liability for errors and omissions.



mation. Power LED and collisions indicators also are provided.

The Magnum 800E Workgroup Hub uses a star network topology with automatic per port partitioning and reconnection. A faulty segment is isolated from the rest of the network, avoiding most network downtime.

Magnum 800E units cost \$1,595.

Contact Garrett Communications, 48531 Warm Springs Blvd., Fremont, CA 94539; (510) 438-9071; [www.garrettcom.com](http://www.garrettcom.com).

*Circle 387 on reader card*

## Telenetics Introduces Zodiac Multichannel Modem

Telenetics introduced Zodiac, a multichannel modem that houses 12- or 24-port modems in one desktop or rackmount case using one energy-saving power source. By minimizing the size of individual modem modules, Zodiac can fit as many as 12 individual V.22bis (2.4 Kbps), V.32bis (14.4 Kbps) or V.34bis (28.8 Kbps) modems into a single desktop metal case, or 24 modems into a rackmount case.

A 24-modem mounting rack with multiple modem ports, with each port running at speeds as fast as 115.2 Kbps, uses less than

30 watts of electricity.

All modem modules are fully Hayes AT command set compatible with programmable registers, and comply with Bell and ITU (CCITT) standards and protocols. They operate at full or half duplex on dial-up systems. A two-wire and four-wire leased-line version also is available.

Prices vary according to the configuration selected.

Contact Telenetics, 1726 Lake Grassland W., Gallatin, TN 37066; (800) 204-6142; [wancm@aol.com](mailto:wancm@aol.com).

*Circle 388 on reader card*

## Extended Systems Ships SerialLink

Extended Systems shipped an enhanced version of its SerialLink external serial port product. SerialLink provides a serial printer connection for virtually any parallel printer.

With SerialLink and the "hot-port" capability of HP printers, customers have the flexibility to attach to multiple computer systems. Once SerialLink is installed, users can simultaneously connect a UNIX system to the SerialLink and a PC system to the other printer interface.

SerialLink ESI-2634 costs \$139.

Contact Extended Systems, 5777 N. Meeker Ave., Boise, ID 83713; (800) 235-7576; [www.extendsys.com](http://www.extendsys.com); [info@extendsys.com](mailto:info@extendsys.com).

*Circle 385 on reader card*

## SystemSoft Corp. Provides MobilePRO

SystemSoft Corp. announced that its MobilePRO system-level software suite will ship with the HP OmniBook 5500CT 5/133, a 133 MHz Pentium-based notebook PC. In addition, the OmniBook 5500 also features SystemSoft's Plug and Play (PnP) BIOS, CardWizard and CardSoft PCMCIA software, and MAXIMIZER power management software which, combined with Windows 95, provides a complete Plug and Play solution.

MobilePRO includes a comprehensive, modular suite of BIOS and system control software. The software enables hot docking and hot swapping.

Contact SystemSoft Corp., 2 Vision Dr., Natick, MA 01760; (508) 651-0088; [www.systemsoft.com](http://www.systemsoft.com).

*Circle 384 on reader card*

## THE TOTAL SOLUTION

*sales, service, support*

On-time service, on-line equipment.

Black River takes the risk and worry out of ordering, implementation and maintenance.

You're assured:

■ Full line of new and previously owned, refurbished 9000, 3000 and 1000.

■ Technically trained maintenance team.

■ Free installation

■ Nationwide service.

Call 216-365-9950 or fax 216-365-3916 for more information.

**BLACK RIVER**  
COMPUTERS

THE TOTAL SOLUTION  
*sales, service, support*

7630 RACE ROAD • NORTH RIDGEVILLE, OHIO 44039  
216-365-9950

**CIRCLE 171 ON READER CARD**

## ADVERTISING SALES OFFICES

Leslie Ringe, Publisher

(215) 643-8070

### EAST COAST

(215) 643-8070

Leslie Ringe, Publisher

1300 Virginia Drive, Suite 400

Fort Washington, PA 19034

FAX (215) 643-8099

### MIDWEST/SOUTHCENTRAL

(215) 643-8063

Gloria Goodwin, Regional Sales Manager

1300 Virginia Drive, Suite 400

Fort Washington, PA 19034

FAX (215) 643-2143

### NORTHWEST/SOUTHWEST

(310) 207-8222

Luisa Perticucci, Regional Sales Manager

Suite 1125

12424 Wilshire Blvd.

Los Angeles, CA 90025

FAX (310) 207-4082

### EUROPE

33 42 93 27 63

Fran Grega, European Sales Manager

Villa Bourguet

Chemin de la Fourane

13090 Aix-en-Provence France

FAX 33 42 27 21 17

Cheryl DeMaiores, Marketing Services Manager

Marketing Services Manager

Lisa Merck, Card Deck Manager

Cathy Dodies, List Rental Manager

Lisa Merck, Product Showcase Sales Manager

**HP**  
**Professional**

1300 Virginia Dr.,

Ste. 400

Fort Washington,

PA 19034

(215) 643-8000 FAX (215) 643-8099



## Central Data Introduces EtherLite Modem Server

Central Data corp. introduced the EtherLite Modem Server, a PCMCIA-based modem server that connects to an Ethernet TCP/IP network. It is shipping on HP-UX, Windows NT and IBM AIX platforms.

The EtherLite Modem Servers (EM-8 and EM-16) provide slots for 8 or 16 PCMCIA modems, operating at 28.8K. They connect to any TCP/IP network via standard 10BaseT Ethernet.

The EM-8 costs \$1,695 and the EM-16 costs \$2,395.

Contact Central Data, 1602 Newton Dr., Champaign, IL 61821; (217) 359-8010; [www.cd.com](http://www.cd.com); [sales@cd.com](mailto:sales@cd.com).

Circle 383 on reader card

## Biscom, HP Form Strategic Partnership

Biscom and HP announced a strategic partnership to combine network-based scanner and fax technologies. The joint solution combines HP ScanJet 4Si, a network-based scanning device, with Biscom's FAXCOM for NetWare product, which provides users with the ability to send and receive faxes within the Microsoft Windows environment via a Novell NetWare server.

A user will be able to scan a document at 15 ppm on the ScanJet 4Si and route the document over the network to any Microsoft Windows (3.1, 3.11 or 95) client PC. The user can then build a fax document, consisting of scanned and computer-based documents, and then fax them from the desktop. The fax is routed from the Windows workstation to the FAXCOM fax server over the network, where it is transmitted to a remote fax machine.

FAXCOM/WorkGROUP for NetWare starts at \$695 for a five-user license. The ScanJet 4Si costs \$2,999 for the Ethernet version and \$3,199 for the Token Ring version.

Contact Biscom Inc., 321 Billerica Rd., Chelmsford, MA 01824; (508) 250-1800; [www.biscom.com](http://www.biscom.com); [sales@biscom.com](mailto:sales@biscom.com).

Circle 382 on reader card

## Thomson-CSF Announces TeleUSE For The Enterprise

Thomson Software Products released TeleUSE for the Enterprise, a family of products that promotes multiplatform, user interface development for UNIX and Windows. The development environment features: TeleUSE, a full featured product for developing GUIs on UNIX-based systems; TeleUSE/Win, which enables users

to develop and deploy applications on Windows NT or Windows 95; and TeleUSE/DB, which reduces the time required to build relational database GUIs.

TeleUSE/Win runs on Microsoft Windows NT and Windows 95. Supported UNIX platforms for TeleUSE are HP-UX, Sun Solaris and SunOS, Solaris x86, SGI Irix, IBM AIX, Digital UNIX, Digital VAX POSIX, OpenVMS, DG AViiON, Intel SVR4 and SCO ODT. TeleUSE/Win costs \$5,000 and TeleUSE

(UNIX) costs \$7,500.

Contact Thomson Software Products, 10251 Vista Sorrento Pkwy., Ste. 300, San Diego, CA 92121; (619) 457-2700; [www.thomsoft.com](http://www.thomsoft.com); [info@thomsoft.com](mailto:info@thomsoft.com).

Circle 381 on reader card

## Network Peripherals Delivers Fast Ethernet

Network Peripherals Inc. (NPI) announced a new family of Fast Ethernet (FE) products for LAN workgroups and departments. The

HP WORKSTATION

SALES & RENTALS



WORKSTATIONS

807	E55	<b>NEW!</b>	755	750	CRX	433 S	CRX	382	360	332
827	F20	J200	735	730	CRX-24	425 T	VRX	362	350	330
847	G30	K200	725	720	CRX-24Z	425 S	GRX	380	345	320
E25	H40	K400	715	710	CRX-48Z	425 E	PVRX	375	340	310
E35	I70	T500	712	705	GRX	400 S/T	EVX	370		

AND MORE . . .

Printers	X Terminals	PC's	Discs	800 Series
Plotters	APOLLO ON Series	Memory	Test Equipment	Data Acquisition

TSA is THE place for daily, weekly, monthly or long term rentals of Hewlett-Packard equipment. Ask about our 6-12 month purchase plans. Equipment available for same day shipment.

1-800-422-4872

713/935-1500 • Fax 713/935-1555 • Email: [Info@tsa.com](mailto:Info@tsa.com)



**HEWLETT  
PACKARD**  
  
 Authorized  
Rental  
Company


THE RIGHT EQUIPMENT. RIGHT NOW.

TSA

2040 West Sam Houston Parkway N. • Houston, Texas 77043

CIRCLE 266 ON READER CARD



## HEWLETT

## PACKARD

### 9000 / 3000

•BUY•  
•SELL•  
•LEASE•  
•TRAINING•  
•(800)553-0592•

PH: (612) 947-0250  
 FAX: (612) 947-0267

### WORLD DATA PRODUCTS

CIRCLE 486 ON READER CARD

## HEWLETT-PACKARD

### 1000 • 3000 • 9000

BUY • SELL • RENT • LEASE

MAINTENANCE

PROCESSORS • PERIPHERALS • SYSTEMS

## EURODATA INC.

(613) 745-0921

Fax: (613) 745-1172

2574 Sheffield Road, Ottawa, Canada K1B 3V7

CIRCLE 283 ON READER CARD

## EDI/EC

Electronic Data Interchange Electronic Commerce

St. Paul Software specializes in high performance EDI software that links applications with trading partners wanting to exchange business documents through EDI. It is designed for integration into your EDI environment and provides the most flexible application integration tool on the market.

**Call 1-800-998-4EDI (4334).**

**ST. PAUL SOFTWARE**  
 1450 ENERGY PARK DR, ST. PAUL, MN 55108  
 TEL 612/603-4400 FAX 612/603-4403

WWW <http://spedi.com> Email [info@spedi.com](mailto:info@spedi.com)

CIRCLE 465 ON READER CARD

OUR 15th YEAR

## QUALITY HP EQUIPMENT WITHOUT THE HP PRICE

DON'T UPGRADE YOUR HP SYSTEM UNTIL YOU GET A SECOND OPINION FROM THE SECOND SOURCE FOR HEWLETT-PACKARD 1000-3000-9000 EQUIPMENT

Consult with us about cost-saving alternatives

- Complete Configurations
- Individual CPUs-Peripherals
- Memory Upgrades and Feature Enhancements
- Classic and Spectrum Equipment

**WE BUY**  
Highest Prices Paid

**WE SELL**  
\*All Items Sold Are Guaranteed for HP Maintenance  
\*Short and Long Term Leases Available

**WE TRADE**  
Over 1000 satisfied Hewlett-Packard users are our customer references throughout the United States, Canada, Europe, and the Far East.

**C.S.J. Industries, Inc.**  
 395 Pearsall Avenue, Cedarhurst, NY 11516  
 Ask for Mord: (516) 239-4310  
 FAX (516) 239-8374

CIRCLE 205 ON READER CARD

## Surety Systems, Inc.

### Hewlett Packard Equipment And Maintenance Services

- HP 9000
- HP 3000
- HP 700 Series Workstations
- HP Peripherals

(713) 466-9455

A World Apart. A Phone Call Away.

Houston, TX. FAX (713) 466-9454

CIRCLE 226 ON READER CARD

## HEWLETT PACKARD

### Depot Repair

- Expert Depot Repair
- 5 Day Turnaround
- Emergency Exchange Program

## 1-800-837-0061

216-365-9950 Ohio  
216-365-3916 FAX

CIRCLE 158 ON READER CARD

## TUNE INTO HP

Pre-owned Equipment

3000

Peripherals

9000

BUY

SELL

TRADE

WORKSTATIONS  
CPUs  
DISC & TAPE DRIVES  
TERMINALS & PRINTERS  
3000/9000 MEMORY

(Phone #) 805-489-1564  
(Fax) 805-481-3799

CIRCLE 219 ON READER CARD

## NORCO COMPUTER SYSTEMS, INC.

Hewlett-Packard Quality at a NorCo Price

### 1000 • 3000 • 9000 • 700

**BUY—SELL**  
**TRADE—LEASE**

Processors, Peripherals and Systems

21337 Drake Road  
Cleveland, OH 44136-6620  
FAX: 216-572-0636  
216-572-4040 1-800-892-1920  
(Outside Ohio)

CIRCLE 221 ON READER CARD

## BUY SELL RENT REPAIR

9000 1000 3000 TEST

MEMORY - PLOTTERS - PRINTERS  
DISC DRIVES - WORKSTATIONS - DATA ACQUISITION

THE RIGHT EQUIPMENT. RIGHT NOW.  
2040 West Sam Houston Parkway N. • Houston, Texas 77043

## 1-800-422-4872

713/935-1500 FAX 713/935-1555

CIRCLE 228 ON READER CARD



# PRODUCT showcase



## I/O Data Systems, Inc.

**Buy - Sell - Lease - Trade**  
**HEWLETT-PACKARD**  
 Systems, Workstations  
 Peripherals, Solutions



**(216) 835-2211**  
 27378 W. Oviatt  
 Bay Village, OH 44140  
 FAX: (216) 835-0220

CIRCLE 272 ON READER CARD

## Time Critical Manufacturing®

# EMS®



EMS is unique in providing both MES and ERP/COMMS to discrete manufacturers. Our strategy is focused on taking time out of the manufacturing process . . . by reducing the time spent waiting for information, providing real-time, pro-active E-Mail messaging, real-time/closed loop scheduling (Finite & Infinite), and standard queries based on real-time information.

**Effective Management Systems, Inc.**  
**1-800-962-1279**

CIRCLE 146 ON READER CARD

## ADAGER

**The Adapter/Manager for IMAGE/SQL Databases**  
 obsoleted the need for database reloads back in 1978 and became the de facto standard for HP3000 systems worldwide.

Sun Valley, Idaho 83353-3000 U.S.A.  
 Toll-free from Canada and the USA:  
 Tel 800 533-7346 Fax 800 247-7346  
 From other parts of the world:  
 Tel 208 726-9100 Fax 208 726-8191

CIRCLE 121 ON READER CARD

## HEWLETT-PACKARD 9000 IT'S OUR SPECIALTY.

**PRINTERS**  
 LaserJets  
 DeskJets  
 Rugged Writers

**PLOTTERS**  
 DraftPros  
 DraftMasters  
 Electrostatics  
 DesignJet

**WORKSTATIONS**  
 Series 200, 300, 400, 700

We offer large discounts, outstanding service and immediate delivery. Call us before you buy a printer or plotter!



**TED DASHER & ASSOCIATES**

4117 2nd Avenue South  
 Birmingham, AL 35222  
**(205) 591-4747 or (800) 638-4833**  
 E-mail: sales@dasher.com Fax: (205) 591-1108

CIRCLE 233 ON READER CARD

MONTEREY BAY COMMUNICATIONS

## The HP 1000/9000 Specialists




TEL: 408/429-6144  
 FAX: 408/429-1918  
 1010 Fair Avenue  
 Santa Cruz, CA 95060

CIRCLE 229 ON READER CARD

## Introducing the First and ONLY Source of OpenView Information Available!

### Focus on OpenView:

*A Guide to Hewlett-Packard's Network and Systems Management Platform*

**Book Highlights:**

- The OpenView Framework
- Systems Management
- OperationsCenter
- Managing the Physical Network
- Managing the Multivendor Enterprise Network



**\$40**

Place your order now! Call Toll Free  
**1-800-285-1755**  
**Or FAX 215-643-8099**

<http://home.navisoft.com/csi6000>




- Expert Pre-Sale Consultation
- New HP Business Systems
- Integration of PC Networks
- Systems Integration
- Rentals And Outsourcing
- Disaster Recovery Services

**Computer Solutions, Inc.**  
**201-672-6000**


CIRCLE 209 ON READER CARD

## Wanted: Authors

Publisher seeks computing experts to write books. Topics of interest include:

- ✎ Migrating from MPE/HP 3000 to HP-UX/9000
- ✎ Encina/9000 Transaction Monitors
- ✎ HP's OpenMail, OpenWarehouse, or SoftBench Programming
- ✎ Document Imaging with HP 3000 and HP 9000
- ✎ System/Network Management
- ✎ UNIX and PCs
- ✎ DCE Applications

Call Laura Derr for information at  
 (215) 643-8104 or  
 derrll@box101.cardinal.com



1300 Virginia Drive, Suite 400  
 Fort Washington, PA 19034

Remanufactured HP 9000 Servers, Workstations

# Workstations

## INTERNATIONAL

Serious HP Solutions

# HP 9000

**QUALITY REMANUFACTURED SYSTEMS**

**SCIENTIFIC WORKSTATIONS**

**BUSINESS SERVERS**

**FULL 90 DAY WARRANTY**

**QUICK TURNAROUND**

Large HP Inventory IN STOCK  
**1-800/842-4781**  
 Call for ALL your HP needs!

601 Lakeshore Parkway, Suite 1160, Minnetonka, MN, USA 55305  
 612 / 449 - 9000 PH 612 / 449 - 3198 FAX  
 e-mail: info@workstations.com

Fast International Turnaround. Guaranteed Quality

X-Stations, Terminals, Memory Upgrades, Mass Storage

CIRCLE 458 ON READER CARD



## CAREERopportunities

## CONSULTANTshowcase

### HP CAREERS NATIONWIDE

The employment market is **HOT!** Skills needed:

- HP3000, HP9000, Client Server
- Application Development, System Management
- COBOL, Powerhouse, Speedware
- Progress, Oracle, Powerbuilder, C++
- Any RDMS
- MPE-iX, HP-UX, HP Openview



CALL, FAX, OR E-MAIL

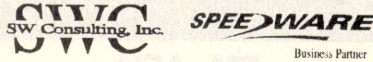
#### Amos Associates

633-B Chapel Hill Road  
Burlington, NC 27215  
Phone: (910)-222-0231  
FAX: (910)-222-1214

Diane Amos, CPC

E-Mail: [fansamos@netpath.net](mailto:fansamos@netpath.net)  
Home Page: <http://resourcecenter.com/amos>  
"Celebrating 20 years as Professional Recruiter"

CIRCLE 204 ON READER CARD



### Immediate Job Openings

SW Consulting, Inc. has immediate openings for candidates with the following HP3000 experience:

Speedware Cobol Turbo Image Omnidex/Imsam

Salaries for professionals with one or more of these skills range from **\$55k - \$85k/yr.** If you have any of these skills and are not earning top dollars for your knowledge and would like to pursue a career as an Information Systems Consultant, then mail or fax your resume to:

SW Consulting, Inc.  
13180 N Cleveland Avenue Suite 112  
N. Ft. Myers, Florida 33903  
Phone: (800) 494-4977  
(941) 656-1011  
Fax: (941) 997-0456

We offer relocation packages and signing bonuses to consultants who qualify.

CIRCLE 255 ON READER CARD

### HP CAREER SPECIALISTS

INFOTECH SEARCH GROUP, Ltd.  
"Professionals serving Professionals"

- We specialize in the placement of **PERMANENT** and **CONTRACTING** Hewlett Packard talent
- Let experienced professionals with a proven track record of success **work for you.**

Call Brian M. Donohue  
Phone: 910-538-0123

Fax: 910-538-0126

P.O. Box 2195  
Burlington, NC 27216-2195

CIRCLE 109 ON READER CARD

### new products

company's NuSwitch FE product family includes two 100/100 segment switching hubs, two 100/100 bridges, six 10/100 segment switching hubs, one 10/100 desktop switching hub, a NuHub 100BaseT repeater, a NuCard 10/100 PCI adapter and NPI's Network Management system.

The NuSwitch 100/100 hubs come with six- or 12-port configurations, and support half or full duplex operations, VLANs, port mirroring, congestion control and a choice of SNMP managed or unmanaged.

The NuSwitch 100/100 bridges allow connections to span distances up to 2 km, support 100BaseTX and 100BaseFX standards and operate in half or full duplex mode.

The NuSwitch 10/100 is a hybrid 10BaseT hub and FE switch which integrates the equivalent of four fully switched 10BaseT clusters or hubs, with each supporting six Ethernet ports and two FE uplink segments.

The NuHub Repeater removes bottlenecks when supporting bandwidth-intensive applications such as 2D and 3D CAD, imaging, multimedia and network video.

The NuCard Adapter is a 10/100 PCI Ethernet adapter that autoconfigures for 10 or 100 Mbps operations and ships with drivers to support all major operating systems.

NPI's Network Management system operates on a PC/Windows environment with HP OpenView platform integration. It also supports SNMP, telnet and tftp for remote network management, and offers port mirroring performance across all ports.

Contact NPI, 1371 McCarthy Blvd., Milpitas, CA 95035; (408) 321-7300; [www.npix.com](http://www.npix.com).

*Circle 379 on reader card*

### New From HP

#### Distributed Print Technology Licensing Agreement

— HP and IBM announced that IBM has licensed to HP the technology underlying Printing System Manager (PSM). PSM is IBM's standard-based print management software for distributed environments. PSM uses the ISO DPA (International Standards Organization Document Production Application) standard based on the Palladium Print Model which resulted from MIT's Project Athena.

The IBM technology is an object-oriented standards-based print management system that allows network administrators to manage global networks of distributed printers from a single workstation, ensuring each user's job goes to the correct printer in the chosen location on the appropriate type of paper at the scheduled time.

With either IBM's PSM or HP's future product, end-users can execute familiar commands to submit jobs from their desktop for output on any networked printer. They are then kept informed with messages from the system about the job and printer status. Users can submit print jobs using HP-UX, AIX, OS/2 and Windows clients, or via a TCP/IP gateway.

**10BaseT Adapter Cards/DeskDirect Brand** — HP introduced two 10BaseT PCI adapter cards and announced the brandname DeskDirect for its family of network adapter cards. The 10BaseT PCI LAN Adapter has one RJ-45 port for twisted-pair cable. The 10BaseT PCI Combo LAN Adapter has one RJ-45 port for twisted-pair and one BNC port for thin coaxial cable. Both are compatible with HP's existing 10/100 adapters. The DeskDirect 10BaseT PCI LAN Adapters have multiple modes of operation, busmastering and full duplex operation. They offer Microsoft Plug-and-Play operation, which allows automatic configuration by Windows 95 and minimum setup time. Price for the HP DeskDirect 10BaseT PCI LAN Adapter is \$139 for a single adapter, \$129 per adapter for a six-pack and \$119 per adapter for a 24-pack. Price for the HP DeskDirect 10BaseT PCI Combo LAN Adapter is \$159 for a single adapter, \$149 per adapter for a six-pack and \$139 per adapter for a 24-pack.

*For more information, contact your local sales office or call (800) 533-1333.*

### Camintonn Z-RAM Reduces Prices

Camintonn Z-RAM announced new price reductions for their memory upgrades; in some cases they have lowered prices as much as 50 percent compared to earlier this year.

Also, they have announced 14 new memory upgrade products. Memory up-

grades for the HP DeskJet 1600C or 1600CM with 1, 2, 4, 8, 16 and 32 MB modules are respectively priced at \$110, \$230, \$370, \$690, \$1,370 and \$2,970. Contact Camintonn Z-RAM, 22 Morgan, Irvine, CA 92718; (714) 454-2022.

*Circle 377 on reader card*



# Winning the Financial Software Game.

When choosing financial management software, your decision should not be left to chance. You need a system that provides quick access to data, is full-featured and easy-to-use, and has the flexibility to accommodate growth and changes as they occur in your organization. You need Mitchell Humphrey & Co.'s FMS II for all of these winning qualities and more.

## Access To Data

With its advanced array of decision support tools, FMS II allows you to quickly retrieve, analyze and present very large amounts of data. For example, you can easily perform instantaneous drill downs, drill arounds and multilevel consolidations for limitless combinations of data. Or create pie charts, line graphs, correlation graphs, stacked bars and crosstab reports in a matter of minutes. You can even integrate with spreadsheet applications for uploading

budgets and forecasts. What's more, these tools integrate with every FMS II system, including General Ledger, Accounts Payable, Accounts Receivable, Purchasing, Inventory, Project Accounting, Fixed Assets, Consolidations and Budgeting.

## Flexible and Easy-to-use

FMS II provides more flexible features across the board than any other financial management system. These features include customizable screens, menus and on-line help; flexible and powerful budgeting; multiple currencies; consolidations; flexible account number; user-defined data; and comprehensive security.

## Specializing in HP Platforms

FMS II is the only product of its kind that was written from the ground up exclusively for the HP 3000 and

HP 9000—a focus that makes Mitchell Humphrey & Co. an expert in business systems that run on these platforms. FMS II's object-oriented design and layered architecture are also portable across a wide variety of data bases. And since FMS II allows you to use both terminals and PCs, you can meet the special needs of your organization, while minimizing the impact on your budget.

## Winning is easy

Call (800) 237-0028 today to arrange a free demonstration of FMS II. It's a move that will make you a winner in the financial software game.



**MITCHELL HUMPHREY & Co.**  
*Exceptional Software for Exceptional Organizations*

© 1996 Mitchell Humphrey & Co.  
CIRCLE 154 ON READER CARD





## Don't Get Soft On Hardware



**Dan Strout**  
Director of  
Distributed  
Systems with  
Comdisco  
Disaster  
Recovery  
Services

So you've bet the business on HP hardware. Well, relax. It's a wise choice. But don't be fooled. Buying reliable hardware doesn't make your business invulnerable to a costly disruption. In fact, in tracking close to 230 computer disaster recoveries worldwide only 22 percent of the disasters were hardware related. Power outages, fires and explosions as well as natural disasters are just-as-likely to occur at anytime, anywhere. In a vulnerability survey conducted last year by ICR Survey Research Group (Media, Pa.), 66 percent of the respondents indicated that they had experienced a computer disruption of at least one hour. And, one out of five disruptions exceeded 24 hours.

### BE PREPARED

Can your company afford that much down time? Probably not. That's why you must prepare for the unexpected. In that vein, here's a checklist of tips on successful testing and recovery compiled mostly from IS managers, system administrators and others gathered from years of experience.

- Ask for a hardware configuration document from your hot site provider that lists all the hardware on the recovery processor to use for compatibility and capacity planning.
- Solicit input from your database specialists in developing your recovery procedures.
- Use separate backup tapes for databases, system files or any third-party software. Save non-HP-UX backup/restore utilities to a separate backup tape using **tar**, **cpio**, etc.
- Review backup tapes going to offsite storage for errors, such as parity blocks of missing data. Also, be sure to use high-grade tapes, clean your tape drives before doing backups, recycle your tapes periodically and make a second, yes, make a second copy of critical files for testing purposes.
- Keep a copy of all HP install media, third-party application manuals and updates in your offsite storage vault.
- Keep hard-copy listings of the logical volume and workgroup information both in offsite storage and at your recovery site. You can retrieve information by submitting **vgdisplay** and **lvdisplay**,

respectively. But, be sure your recovery subscription allows for sufficient disk space. Also, be sure to keep current file system information offsite and at your recovery facility. Select the **bdf** command to retrieve this information, and keep a hard copy close at hand for reference.

- Perform a full HP-UX install during your tests; however, when testing the restoration of the production system and data files, do not restore files in the **/et**, **/dev**, **/hp-ux**, **/SYSBACKUP** and **/bin** directories. There are files in this directory specific to the hardware layout of the recovery system.
- Update your network diagram to list all TCP/IP addresses and subnet masks as it pertains to your recovery network. Be certain to bring the diagram to your tests/recovery.
- Schedule tests. When you test, you learn. The more you learn, the less vulnerable you are in the event of a disruption. Don't just talk about it. Do it. Now.

### YOU HAVE TO TEST TO BE YOUR BEST

By periodically testing your plan, you'll find the problems that could be devastating in the event of a disruption. Testing also provides a means to try new ideas and processes, and the ability to learn from your mistakes without downtime. Also, learning from other people's mistakes is important to successfully reducing your vulnerability to a disruption. When it comes to disaster recovery, it's clearly a case for actions over words.

Although you're not in a position to control mother nature or the electric company, you are in a position to control the success of your recovery. Therefore, it's your responsibility to see that every measure is taken to ensure success and avoid a lengthy disruption.

—Dan Strout is Director of Distributed Systems with Comdisco Disaster Recovery Services (Rosemont, Ill.).



# With Unison RoadRunner

your UNIX backups won't encounter any  
speed bumps



That's because Unison RoadRunner is the fastest and most reliable backup product you can buy for your UNIX systems. It provides high-speed, high-compression store and restore, with speeds of more than 60 gigabytes per hour on parallel drives.

That makes RoadRunner the ideal solution for environments that include large servers with large amounts of data to be backed up. And companies have peace of mind because they know that in a disaster situation their mission-critical data will be restored quickly and reliably.

But RoadRunner gives you much more than high speed. Support for multiple platforms means RoadRunner can handle all backup and recovery requirements across the network. And RoadRunner gives you the option of using a point-and-click GUI or a feature-rich command-line interface.

There's a lot more. A state-of-the-art catalog management system. Extensive device support. On-line backup of Oracle and Sybase databases. Integration with HP's Operations-Center. You can even custom-tune certain backup parameters to achieve optimal performance.

Whichever way you run it, RoadRunner gives you the record-setting performance that sets it apart from all competitors. See for yourself. Call us today at **1-800/298-4149** for more information.

## Unison Software

5101 Patrick Henry Dr., Santa Clara, CA 95054  
Phone 1-800/298-4149, Fax 408/988-2236  
Web Site <http://www.unison.com>

**CIRCLE 499 ON READER CARD**



**PCWEEKLABS**  
**ANALYST'S**  
**CHOICE**  
OCT. 9, 1999  
Reflection Suite for X5

## Reflection Suite for X 5



Impossible? Not with Reflection® from WRQ. Reflection offers complete, integrated PC connectivity software for your entire enterprise—including transport protocols, PC X server software, and terminal emulation. All with the management features, open standards, and service and support you need.



REFLECTION PC-TO-HOST CONNECTIVITY SOFTWARE

- ▲ UNIX, X, HP, DIGITAL, A5/400 AND 3270 CONNECTIVITY
- ▲ WINDOWS, DOS, AND MACINTOSH PLATFORMS
- ▲ INTUITIVE OPERATIONS, FAST FILE TRANSFER, ADVANCED TEXT AND GRAPHICS EMULATION, AND POWERFUL PROGRAMMING TOOLS

- ▲ COMMUNICATIONS: TCP/IP, UDP, LAT, NS/VT, IPX/SPX, SLIP, CSLIP
- ▲ ARCHITECTURE: VxD/DLL DESIGN; 100% WINDOWS SOCKETS COMPLIANT
- ▲ FULL-FEATURED APPLICATIONS (FTP, LPR/LPD, INTERNET ACCESS)
- ▲ EASY CONFIGURATION AND MANAGEMENT
- ▲ OPTIMIZED FOR MOBILE/WIRELESS COMPUTING

To try connectivity designed from your point of view, call today for a free evaluation copy. We'll make sure that from here on out, your Mondays go swimmingly.

For a FREE evaluation copy,  
of any Reflection® product, call  
**800.926.3896**



CALL 800.926.3896 IN EUROPE, CALL +31.70.375.11.00  
OUTSIDE EUROPE, CALL 206.217.7100  
INTERNET: [sales@wrq.com](mailto:sales@wrq.com) WEB: <http://www.wrq.com>

WALKER RICHER & QUINN, INC. / 1500 DEXTER AVENUE NORTH, SEATTLE, WASHINGTON 98109 USA  
 FAX: +206 277 0293 • BUTTENHOF 47, 2513 AH DEN HAAG, THE NETHERLANDS / FAX: +31 70 356 12 44  
 • WILHELM-MARK-HAUS, HEINRICH-HEE ALLEE 53, 40213 DÜSSELDORF, GERMANY / FAX: +30 360  
 12 000 88 • LE DOMME BP 10910, 1 RUE DE LA HAYE, 95731 ROISSY CDG CEDEX, FRANCE / FAX: +33 1 49 19 22 16  
 • WIKO AND REFLECTION ARE REGISTERED TRADEMARKS OF WALKER RICHER & QUINN, INC.